



**University of
Zurich^{UZH}**

**Zurich Open Repository and
Archive**

University of Zurich
University Library
Strickhofstrasse 39
CH-8057 Zurich
www.zora.uzh.ch

Year: 2021

Safeguarding integrity of market-based cooperation under Article 6: additionality determination and baseline setting

Ahonen, Hanna-Mari ; Michaelowa, Axel ; Espelage, Aglaja ; Kessler, Juliana ; Christensen, Johanna ;
Dalfiume, Sandra ; Danford, Erin

Abstract: This paper was developed by Perspectives Climate Research gGmbH (PCR), with inputs from the Carbon Market Mechanisms Working Group (CMM-WG) and further technical experts consulted. We thank all the working group members and technical experts as well as the numerous survey participants for their input to this paper. The CMM-WG is chaired by PCR and is funded and coordinated in close collaboration with the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The CMM-WG focuses on technical aspects of programmatic and upscaled crediting mechanisms in Article 6 of the Paris Agreement as well as results-based climate finance. The working group aims to facilitate a continuous dialogue on technical issues among key carbon market stakeholders.

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-208160>

Published Research Report

Published Version

Originally published at:

Ahonen, Hanna-Mari; Michaelowa, Axel; Espelage, Aglaja; Kessler, Juliana; Christensen, Johanna; Dalfiume, Sandra; Danford, Erin (2021). Safeguarding integrity of market-based cooperation under Article 6: additionality determination and baseline setting. Freiburg: Perspectives Climate Research gGmbH.

IMPRINT

Publisher:

Perspectives Climate Research gGmbH

Lead authors:

Hanna-Mari Ahonen, Axel Michaelowa, Juliana Kessler, Aglaja Espelage, Johanna Christensen, Sandra Dalfiume, Erin Danford

Date:

06/2021

ACKNOWLEDGEMENTS

This paper was developed by Perspectives Climate Research gGmbH (PCR), with inputs from the Carbon Market Mechanisms Working Group (CMM-WG) and further technical experts consulted. We thank all the working group members and technical experts as well as the numerous survey participants for their input to this paper.

The CMM-WG is chaired by PCR and is funded and coordinated in close collaboration with the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The CMM-WG focuses on technical aspects of programmatic and upscaled crediting mechanisms in Article 6 of the Paris Agreement as well as results-based climate finance. The working group aims to facilitate a continuous dialogue on technical issues among key carbon market stakeholders. For more information go to:

<https://www.carbon-mechanisms.de/en/news-details/poa-working-group-1>

DISCLAIMER

The analysis, results, and recommendations in this paper, funded by the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, represent the opinions of the authors and are not necessarily representative of the position of the funder.

Contact CMM-WG coordinator:

Johanna Christensen

christensen@perspectives.cc

© Perspectives Climate Research gGmbH | June 2021

All rights reserved.

Key messages

- Additionality remains a key concept even in the Paris Agreement context where all countries contribute to mitigation. Safeguarding additionality prevents undermining of the global mitigation ambition by spurious emissions credits as well as creating risks to NDC achievement due to the sale of ‘low hanging fruit’. Particular attention needs to be put on developing workable approaches for assessing additionality of activities that aim at the introduction of mitigation policy instruments. Three ‘shades’ of additionality – financial, regulatory and target – need to be considered. A clear distinction needs to be made between (ex-ante) additionality and (ex-post) vulnerability of an activity.
 - Baseline determination under Article 6 needs to be aligned with NDC targets in the short term and with the target to reach net zero emissions in the long term. This means that existing and planned mitigation policies need to be taken into account in baseline determination. Consistency with long-term targets can be achieved through simple means like a discount factor or ‘ambition coefficient’ applied to baseline emissions intensity. Pure business-as-usual baselines are no longer acceptable. Performance benchmarks, including best available technology approaches, can only be applied in certain sectors.
 - Compared to the Kyoto Mechanisms, developing countries wanting to participate in Article 6 as ITMO sellers need a significant upgrade of their capacity. This is necessary to enable informed decisions regarding additionality and baseline approaches when approving activities and authorising ITMO transfers. The former should be aligned with approaches used under NDC development and could include positive lists.
-

Table of contents

1. INTRODUCTION	1
2. SETTING THE SCENE: KEY CONCEPTS AND CONTEXTS	2
2.1. KEY CONCEPTS: ADDITIONALITY AND BASELINES	2
2.2. CLIMATE POLICY CONTEXT: KYOTO PROTOCOL AND PARIS AGREEMENT	3
3. ADDITIONALITY TESTING METHODOLOGIES	5
3.1. EVOLUTION OF ADDITIONALITY TESTING	5
3.2. REVISION NEEDS REGARDING ADDITIONALITY DETERMINATION UNDER THE PARIS AGREEMENT	7
3.2.1. A CONCEPTUAL DISTINCTION OF THREE ‘SHADES’ OF ADDITIONALITY	9
3.2.2. DISTINGUISHING BETWEEN ADDITIONALITY AND VULNERABILITY OF ACTIVITIES	12
3.2.3. THE ROLE OF POSITIVE LISTS UNDER THE PA	12
4. BASELINE SETTING METHODOLOGIES	13
4.1. PRINCIPAL APPROACHES TO CREDITING BASELINES	13
4.2. EVOLUTION OF BASELINE SETTING APPROACHES UNDER THE KYOTO PROTOCOL	14
4.3. REVISION NEEDS TO BASELINE SETTING APPROACHES IN THE PA CONTEXT	15
4.3.1. APPROPRIATE BASELINE SETTING APPROACHES FOR DIFFERENT ACTIVITY TYPES	15
4.3.2. UPSCALING BASELINES	16
4.3.3. LINKING THE BASELINE TO THE LONG-TERM TARGET OF THE PA – FROM SHORT- TO LONG-TERM	17
4.3.3.1. INCLUSION OF EXISTING AND PLANNED POLICIES IN STATIC BASELINES	17
4.3.3.2. CONSIDERATION OF NDCs IN STATIC BASELINE SETTING	18
4.3.3.3. MAKING BASELINES DYNAMIC	18
4.3.3.4. CONSIDERING LT-LEDs IN BASELINE SETTING	19
4.3.3.5. ALIGNMENT OF BASELINE SETTING WITH PA-COMPATIBLE PATHWAYS	20
5. OVERSIGHT AND HOST COUNTRY ROLE	21
5.1. OVERSIGHT AND HOST COUNTRY ROLE UNDER THE KYOTO PROTOCOL	21
5.2. OVERSIGHT AND HOST COUNTRY ROLE UNDER THE PARIS AGREEMENT	22
5.2.1. ADDITIONALITY TESTING THROUGH HOST COUNTRIES	24
5.2.2. BASELINE SETTING BY HOST COUNTRIES	27
6. CONCLUSIONS FOR OPERATIONALISING ARTICLE 6 METHODOLOGIES	29
REFERENCES	30
ANNEX I: THE SURVEY	33
ANNEX II: SUMMARY OF THE SURVEY RESULTS	37

Figures

Figure 1: Different forms of mitigation targets within NDCs	4
Figure 2: Steps for demonstrating and assessing additionality	6
Figure 3: Evolution of additionality testing	7
Figure 4: Key questions faced by additionality determination under Article 6.....	8
Figure 5: The three ‘shades’ of additionality testing under Article 6.....	9
Figure 6: Expressed approval preferences for positive lists.....	13
Figure 7: Options for crediting baseline setting	14
Figure 8: Key questions faced by baseline setting under Article 6.....	15
Figure 9: Transitioning to a normative reference/OUGHT margin	19
Figure 10: Application of the ambition coefficient to BAU	21
Figure 11: International oversight and party-level oversight under Article 6	23

Abbreviations

A6.4M	Article 6.4 Mechanism
A6.4ER	Article 6.4 Emission Reductions
BAU	Business As Usual
BAT	Best Available Technology
BTR	Biennial Transparency Report
CBDR	Common but Differentiated Responsibilities
CBDR-RC	Common but Differentiated Responsibilities and Respective Capabilities
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CMM-WG	Carbon Market Mechanisms Working Group
COP	Conference of the Parties
DOE	Designated Operational Entity
EB	Executive Board
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
ITMO	Internationally Transferred Mitigation Outcome
JCM	Joint Crediting Mechanism
JI	Joint Implementation
JISC	Joint Implementation Supervisory Body
KP	Kyoto Protocol
LDC	Least Developed Country
LT-LEDs	Long-term Low Emission Development Strategy
Mt	Million metric tonnes
NDC	Nationally Determined Contribution
OFN	Ongoing Financial Needs
PA	Paris Agreement
PCR	Perspectives Climate Research
RMPs	Rules, modalities, and procedures
SB	Supervisory Body
TCAF	Transformative Carbon Asset Facility
UNFCCC	United Nations Framework Convention on Climate Change

1. Introduction

Market-based mechanisms as a climate policy instrument strive for environmental integrity, which is understood as “a situation where the individual elements or mechanisms of an overarching instrument do not undermine the (environmental) goals of this instrument” (Hermwille and Obergassel 2018, p. 4-5). Ensuring the environmental integrity of market-based cooperation means ensuring that such cooperation contributes to global mitigation efforts, and at the very least does not lead to a net increase in global greenhouse gas (GHG) emissions compared to a situation without market-based cooperation.

In this paper, we focus on market-based cooperation relating to baseline-and-credit schemes, which credit (i.e. issue carbon credits for) mitigation outcomes against a baseline, in accordance with the scheme’s criteria and rules. Robust additionality testing and setting crediting baselines are core elements for ensuring the environmental integrity of baseline-and-credit schemes. If mitigation outcomes (emission reductions and removals) are not additional and/or are credited against an invalid baseline, the use of such mitigation outcomes for mitigation purposes would undermine, rather than promote, the achievement of mitigation goals.

Additionality testing and baseline setting are operationalised by methodologies which provide guidance on: setting the baseline against which mitigation outcomes are quantified; testing additionality of an activity; quantifying an activity’s emissions/leakage and resulting mitigation outcomes; and detail requirements for monitoring, data management and reporting procedures.

Due to their critical role, methodological approaches to additionality testing and baseline setting have been heavily scrutinised and contested since the emergence of international baseline-and-credit schemes over two decades ago. They are easy targets for criticism and questioning since, by their very nature, they rely on counterfactual assumptions on what would happen without the mitigation activity (Michaelowa et al. 2019). Current methodological approaches for additionality testing and baseline setting embody decades of extensive efforts by the international carbon market community in their development, application and revision, most notably under the Kyoto Protocol’s (KP) Clean Development Mechanism (CDM) (see Michaelowa 2009 for an account how additionality tests have been developed under the CDM). Many baseline-and-credit schemes recognise and build on approaches developed under the CDM, and have also developed their own approaches for specific contexts.

In this paper, we explore the development of methodologies for additionality testing and baseline setting under Article 6 of the Paris Agreement (PA). Voluntary market-based cooperation under Article 6, which includes baseline-and-credit schemes, helps countries in the implementation of their Nationally Determined Contributions (NDCs) to allow for higher ambition in their mitigation actions and to promote sustainable development and environmental integrity.

Specific considerations for methodologies in the context of Article 6 of the PA are that they need to be designed to promote mitigation ambition, safeguard the contribution of activities to Parties’ NDCs and contribute to an overall mitigation in global emissions. In this paper, ‘Article 6 methodologies’ refers to methodologies that are aligned with the requirements under Article 6, including guidance on international transfers of mitigation outcomes under Article

6.2 and the rules, modalities and procedures (RMPs) of the international Article 6.4 Mechanism (A6.4M). As of June 2021, the rules and requirements for Article 6 were still under negotiation. They are due to be adopted at the UN climate conference in Glasgow (COP26) in November 2021.

This paper summarises the discussions on Article 6 methodologies for additionality testing and baseline setting that took place in the context of the Carbon Market Mechanisms Working Group (CMM-WG) in the first half of 2021. The CMM-WG focuses on baseline-and-credit approaches under Article 6 of the PA, and does not address other types of international market-based cooperation under Article 6, such as the linking of emission trading systems.

Specifically, this paper presents key insights from the two technical workshops that took place in March and May 2021, on Article 6 methodologies and on host country oversight on Article 6 methodologies, respectively. In addition, the paper discusses the key results of a survey on additionality testing and baseline setting methodologies conducted between 9 March 2021 and 30 April 2021 (see Annex I for questionnaire). In total, 68 people participated in the survey, of whom 57.4% indicated a high level of expertise on carbon markets (see Annex II for full summary).

This paper serves as input to international discussions on additionality testing and baseline setting in the context of baseline-and-credit approaches under Article 6 of the PA. It seeks to provide an overview of key issues which are currently discussed among experts, to reflect on the implications of different concepts' operationalisation and to identify further research needs.

The rest of the paper is organised as follows. First, we introduce the key concepts of additionality and baselines, and the climate policy contexts under the KP and the PA. Then, we provide an overview of the evolution of key methodological approaches to date and explore their robust application in the context of the PA and its Article 6. Specifically, we consider how methodologies for additionality testing and baseline setting can be aligned with Article 6 requirements and net-zero emissions pathways consistent with the PA's long-term goals, while respecting countries' different responsibilities and respective capabilities.

2. Setting the scene: Key concepts and contexts

2.1. Key concepts: Additionality and baselines

For a mitigation activity to be deemed additional, it needs to be demonstrated that the activity would not have happened 'anyway', that is, without support from carbon market cooperation (Michaelowa 2009). Additionality testing thus aims to ensure that only real mitigation outcomes that require carbon market support are credited under baseline-and-credit schemes (Michaelowa et al. 2019). For the assessment of an activity's additionality, baseline (also referred to as 'reference') and activity scenarios are developed to assess whether the activity scenario differs from the baseline scenario. It should however be noted that a difference between baseline and activity *emissions* does not mean that an activity is additional, especially if the methodology used to calculate baseline emissions does not specifically assess an activity's additionality. Here, we would like to stress that the term 'baseline' is generic and can relate to different but overlapping concepts. In the case of additionality testing, 'baseline' refers to the reference scenario against which additionality is assessed ('what is already present

and available”) (Michaelowa et al. 2019). A ‘crediting baseline’ to determine an activity’s emission reductions or avoidance is not necessarily the same as a reference scenario. Another use of the term ‘baseline’ relates to emission projections at the national or sectoral level in the context of the NDC.

Some stakeholders are of the opinion that additionality determination can be built into the baseline definition in contexts with ambitious emission caps, that is, caps that are set considerably below business-as-usual (BAU). Depending on the selected baseline approach, such integration may be possible but needs a careful approach.

Crediting baselines set the reference level of GHG emissions against which the maximum volume of carbon credits that can be issued is calculated (Lo Re et al. 2019). Historically, the crediting baseline was often equated to BAU, the continuation of historic emission levels. However, there are various other options for baseline setting, including the use of benchmarks or emission pathways aligned with policies/targets (see section 4.1).

Baselines are ‘counterfactuals’ and no single ‘true’ approach to baseline setting exists (Lo Re et al. 2019; Michaelowa et al. 2021a). Additionality, too, is counterfactual by nature (Gillenwater 2012).

2.2. Climate policy context: Kyoto Protocol and Paris Agreement

The KP of 1997 assigned binding emission caps to developed country Parties. These caps had identical characteristics: they quantified an upper limit for Parties’ cumulative economy-wide GHG emissions during the commitment periods (2008-2012 and 2013-2020). Developing country Parties were not required to limit their emissions, reflecting the principle of common but differentiated responsibilities (CBDR). Economies in transition were assigned emission caps that were significantly above their post-Soviet-era emission levels, providing space to increase emissions back to their Soviet-era levels. Such excess quota above BAU emissions is referred to as ‘hot air’.

The KP allowed developed country Parties to meet their caps flexibly, including by buying and selling carbon credits issued under Joint Implementation (JI) and the CDM, for mitigation outcomes generated in other Parties with and without emission caps, respectively. JI consisted of two tracks: Track 1 was supervised by host countries while Track 2 was supervised by an international JI Supervisory Body (JISC). The operation of JI was linked to commitment periods, and thus, it effectively ended at the end of the first commitment period in 2012. The second commitment period did not enter into force until late 2020. The CDM, on the other hand, is operated by the international CDM Executive Board (EB), which provides methodological guidance, approves methodologies, registers CDM activities and issues CDM credits. The future of the CDM and how its activities are to be “transitioned” to the PA regime is currently being negotiated.

The PA of 2015 introduces mitigation targets – NDCs – of all country Parties. These are nationally determined, and differ from each other in various respects. The PA (and related decisions) only provides limited guidance that promotes harmonisation of NDCs. A decision on ‘features’ of NDCs was postponed to 2024 and a decision on ‘common time frames’ is still being negotiated, but Parties adopted a list of information that Parties must communicate to enhance clarity, transparency and understanding of NDCs (UNFCCC 2018). In addition, Parties must

submit information on their NDCs, methodologies and assumptions as well as indicators to track progress in their biennial transparency reports (decision 18/CMA.1).

Mitigation targets included in NDCs can take a variety of different forms:

Figure 1: Different forms of mitigation targets within NDCs

Intensity/ absolute target	<p>Absolute NDC target: Fixed-level target → certain amount of million metric tonnes GHGs (Mt CO₂e) will not be exceeded in the target year</p> <p>Intensity targets: Reduction of the intensity of emissions per unit of a variable such as Gross Domestic Product instead of reduction emissions to any given level</p>
Conditional/ unconditional target	<p>Conditional targets: Usually linked to international support through finance, technology transfer, or capacity building</p> <p>Unconditional targets: Usually understood as relying solely on domestic capabilities and resources (ECBI 2018). However, some least developed countries (LDCs) expect international support for unconditional targets, given their special circumstances</p>
Single year/ multi year target	<p>Single-year targets: Need to be achieved in the end year of the NDC implementation period</p> <p>Multi-year targets: To be achieved throughout the NDC implementation period</p>
Activity-based target/ target-based	<p>NDC targets can include activity-based targets which are defined in a bottom-up manner or the national-level target can be broken down to the sectoral level</p>
Non-GHG metrics in NDC targets	<p>NDC targets can refer to GHG metrics which are elaborated on the basis of the guidance from the International Panel on Climate Change (IPCC) or other metrics such as for example renewable energy capacity</p>
Output/ activity-related NDC targets	<p>NDC targets can derive emission reduction targets based on specific (sub-)sectoral activities or can be formulated in a top-down manner where mitigation activities are not predefined</p>

Source: Authors

Parties were expected to submit an updated or second NDC as well as a long-term low emission development strategy (LT-LEDS) before the implementation of the PA started in 2021. However, many NDC updates are still ongoing as of June 2021 and most countries have not yet communicated an LT-LEDS.

Article 6 of the PA provides for voluntary international cooperation between Parties “in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity”. Articles 6.2-6.7 cover market-based approaches while Articles 6.8-6.9 cover non-market-based approaches. Under so-called Article 6.2 guidance, Parties can pursue (market-based) cooperative approaches that involve the international transfer of mitigation outcomes. When engaging in these cooperative approaches, they are required to report to the PA how they ensure environmental integrity, apply robust accounting, including to avoid double counting, and promote sustainable development. This information will be subject to a technical expert review. Under Article 6.4, a new international mechanism will be established for crediting mitigation outcomes. The so-called A6.4M will be supervised by an international Supervisory Body (SB) which will be responsible for approving rules and methodologies, including for additionality and baseline setting, and issuing carbon credits (so-called Article 6.4

Emission Reductions, A6.4ERs). The transfers of A6.4ERs will be governed by the rules of the Article 6.2 guidance.

As of June 2021, the rules for Article 6 were still under negotiation. They are due to be adopted at the UN climate conference in Glasgow (COP26) in November 2021. The latest Article 6 draft negotiation texts foresee a transition of existing CDM activities and methodologies to the A6.4M. The latter requires their revision in order to be aligned with the new rules on methodologies for Article 6.4 activities (Michaelowa et al. 2020a). Assuming the adoption of Article 6 rules at COP26, the A6.4M could be operational (i.e., register activities and issue credits) in 2023. Although the lack of agreed rules and an operational A6.4M hinders the development of Article 6 activities, some Article 6 pilots are already ongoing and provide valuable insights to additionality testing and baseline setting in the context of the PA.

3. Additionality testing methodologies

This chapter will first take a closer look at the evolution of additionality testing across the last decades before discussing revision needs in the context of the PA by building on the views shared in workshop discussions and in the conducted survey.

3.1. Evolution of additionality testing

Article 6 and 12 of the KP introduced the requirement of additionality to JI and CDM, respectively, and the Marrakesh Accords (2001) provided initial guidance hereon. Under JI Track 1, the host country may verify mitigation outcomes as additional to any that would otherwise occur. Under JI Track 2, an accredited third party will determine additionality in line with JISC guidance. Under CDM, additionality is determined by an accredited third party in line with CDM EB guidance. Negotiators were not able to agree on an operational definition of additionality and left the development of additionality rules to the CDM EB and JISC (Michaelowa 2009).

Assuming that JI host countries have ambitious emission caps that are set below BAU, they have a strong interest in ensuring additionality since, if they issue non-additional JI credits, they would need to make up the difference and mitigate even more (Kollmuss et al. 2015). However, JI host countries with ‘hot air’ in their Kyoto targets lack this incentive. Thus, as long as there is a possibility of hot air in host country targets, international oversight would be needed for additionality testing (Michaelowa et al. 2019). In JI host countries, there were many interest groups that pushed for setting baselines in a manner that overstated emission reductions and governments had lacked the capacity to withstand such forces (Schmitz and Michaelowa 2005).

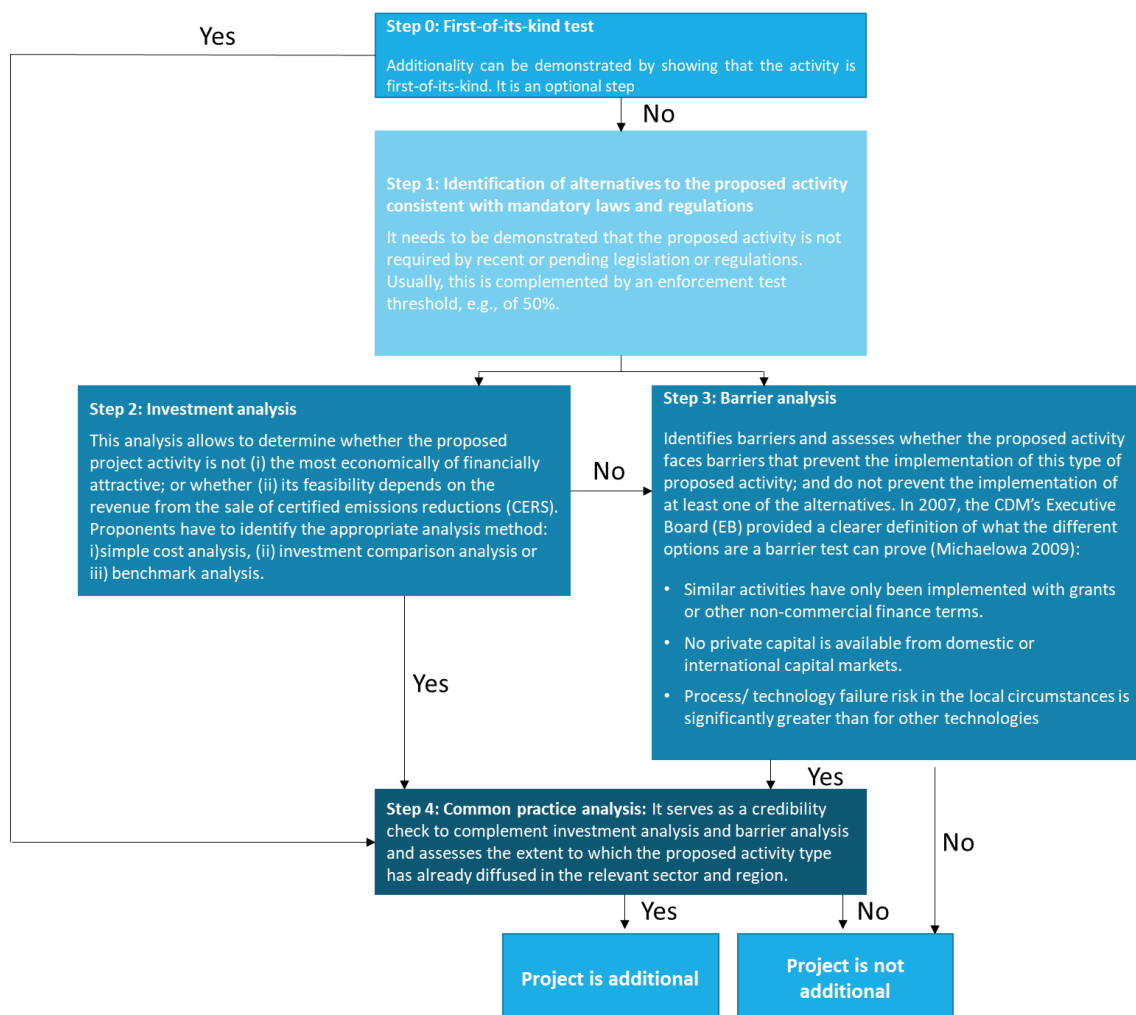
The JISC’s guidance on additionality testing includes two approaches: a JI-specific approach or an approved CDM methodology approach. The JI-specific approach, in turn, includes three options: (1) demonstrating that the activity scenario is not part of a conservative baseline scenario and that the activity will lead to mitigation outcomes; (2) demonstrating that comparable JI activities (same GHG mitigation measure, same country, similar technology, similar scale) have already been deemed additional; and (3) applying the most recent version of the CDM ‘Tool for the demonstration and assessment of additionality’ or any other method for proving additionality approved by the CDM EB (see below). Option (3) is very close to the

approved CDM methodology approach, that is, application of an applicable CDM methodology to a JI activity. In all cases, the appropriateness of the selected approach must be convincingly substantiated to the accredited independent entities.

Under the CDM, for small-scale projects, barrier testing was enshrined as the main additionality testing method in 2003. For large-scale projects, the EB adopted in 2004 a consolidated methodological ‘tool for the demonstration and assessment of additionality’, comprising a choice of an investment or a barrier analysis, complemented by a common practice analysis (Michaelowa 2009). Since no widely-applicable additionality test had been submitted afterwards, the consolidated additionality tool became the *de facto* standard for additionality testing with the EB turning to the task to identify simplified methods (Michaelowa 2009).

The latest version (v. 7) of this tool from 2012 includes the following steps for demonstrating and assessing additionality:

Figure 2: Steps for demonstrating and assessing additionality



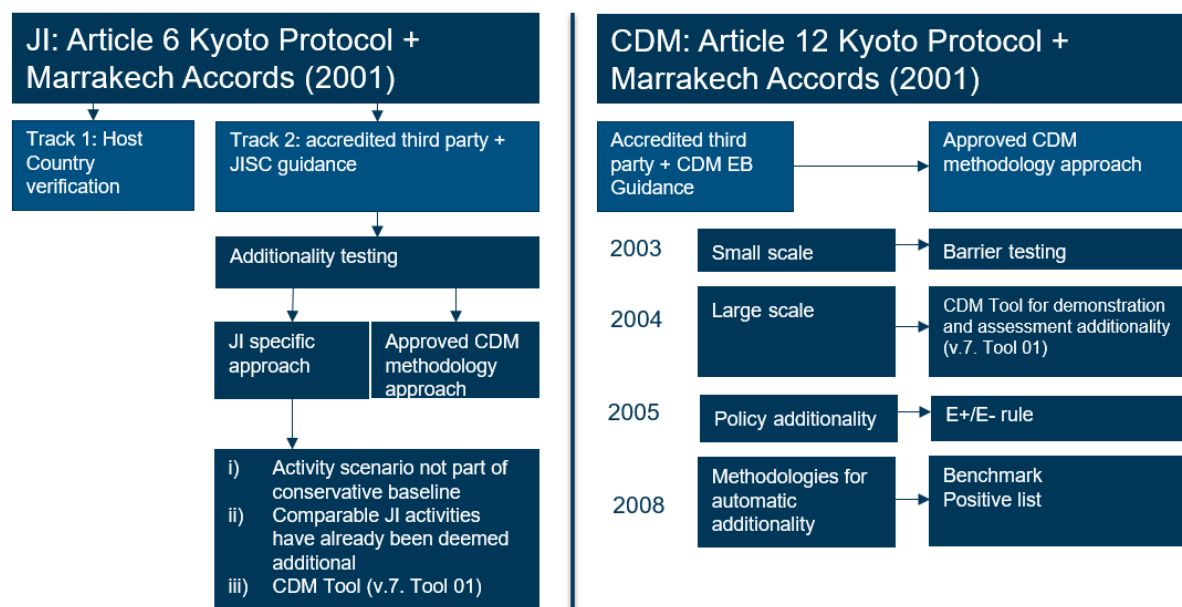
Source: Authors' adaptation of UNFCCC (2012b)

Investment tests represent the ‘workhorse’ of the CDM additionality determination since 2007. Investment analysis faced challenges regarding the availability and transparency of information on financial parameters for the calculation of the internal rate of return (IRR) leading to a risk of gaming the parameters which the CDM EB and validators have to discover.

Under the KP, several discussions took place regarding policy additionality. Policy additionality was introduced as a safeguard against artificially high baseline scenarios and to avoid potential perverse incentives of the CDM that weaken internal emission reduction policies within host countries (UNFCCC 2013). During the early stages of the CDM, the CDM EB agreed to use ‘E+ and E- policies’ rules as part of the baseline determination. E+ policies referred to “national and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels” (UNFCCC 2005). These policies could only be accounted in the baseline scenario if adopted prior to the KP. E- policies have been defined as “national and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies” (UNFCCC 2005). Such policy instruments introduced after 2001 were not to be taken into account in assessing additionality of CDM projects. The rationale behind not considering policy instruments anymore was to avoid the perverse incentive to not adopt climate policies in order to be able to generate more carbon credits (Shishlov and Bellassen 2012).

In 2008, the first two methodologies defining automatic additionality were adopted (Michaelowa 2009). The CDM EB’s promotion of standardised approaches since 2011 has also resulted in the emergence of positive lists of technologies that are deemed automatically additional, e.g. due to their generally high costs. Positive lists are not a panacea as they can become obsolete quickly (Michaelowa et al. 2019), but they are increasingly applied also by standards catering to the voluntary carbon market. Provides an overview of the evolution of additionality testing.

Figure 3: Evolution of additionality testing



Source: Authors

3.2. Revision needs regarding additionality determination under the Paris Agreement

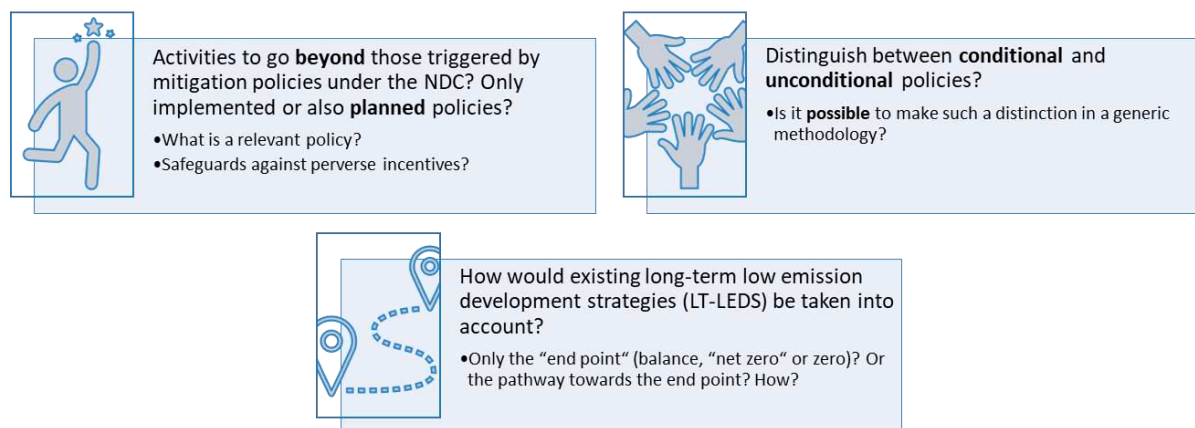
A key question raised by experts in CMM-WG workshops was how to ensure consistency in additionality determination in cooperative approaches (Article 6.2) and under the A6.4M.

Multiple suggestions were made to streamline additionality tests as much as possible, making them clear and easy to implement. Some survey respondents questioned whether additionality testing is still a concept that makes sense in the PA context, though the majority were in favour of the concept's application. Looking beyond the survey, several workshop participants noted that roots and functions of additionality under the CDM would have to be specified before analysing how these must be adapted and transformed for the PA context.

The current Article 6.2 draft negotiation texts do not go into detail on the additionality definition (UNFCCC 2019d). The latest Article 6.4 draft negotiation texts still include several definitions or specifications, including 'being additional to what would occur in the absence of the mechanism', 'additional to what would otherwise occur, including per existing policies, laws and regulation', being 'complementary and/or additional to policies and measures associated with the NDC of the host Party' (UNFCCC 2019a; UNFCCC 2019b; UNFCCC 2019c). The latter wording takes into account the dynamic nature of the PA which requires countries to increase their ambition every five years in the form of new or updated NDCs. Thus, the practice of not considering new national mitigation policies in the form of the KP E+/E- rule is seen as no longer appropriate. However, other safeguards will need to be taken to ensure that there are no perverse incentives provided by carbon markets to, for example, exclude certain sectors from the NDC's scope or to not adopt certain policies to be able to continue generating credits from specific activities.

Considering this context, there are some questions that still need to be resolved to operationalise the additionality definitions in the negotiation texts:

Figure 4: Key questions faced by additionality determination under Article 6



Source: Authors

With regard to the first question, the results of the survey provide some interesting insights. When asked whether additionality testing should be contingent on the coverage of an activity by the NDC, 39.7% of the respondents strongly agreed that additionality testing is needed for activities that are not covered by the NDC. When asked whether additionality testing is required for activities covered by the NDC, 32.3% of the participants strongly agreed. Those who agreed were then asked to rate the importance of factors that should be taken into consideration (such as financial barriers, existing policies, conditionality of targets, etc.). CMM-WG discussants noted that additionality testing for expected or planned policies poses many challenges as opposed to the less complex testing of existing policies.

With regard to the second question, a distinction between conditional and unconditional targets would probably need to be made (Michaelowa et al. 2020b). However, there is currently no common understanding of (un)conditionality of NDC targets, and developing countries use different definitions in their NDCs. Therefore, attention needs to be paid to how the host country defines the conditionality of its targets and what role it foresees for Article 6 cooperation. From a host country perspective, it is in their interest that the crediting activity goes beyond the unconditional target if the target is below BAU, as there might otherwise be a high risk of overselling mitigation outcomes.

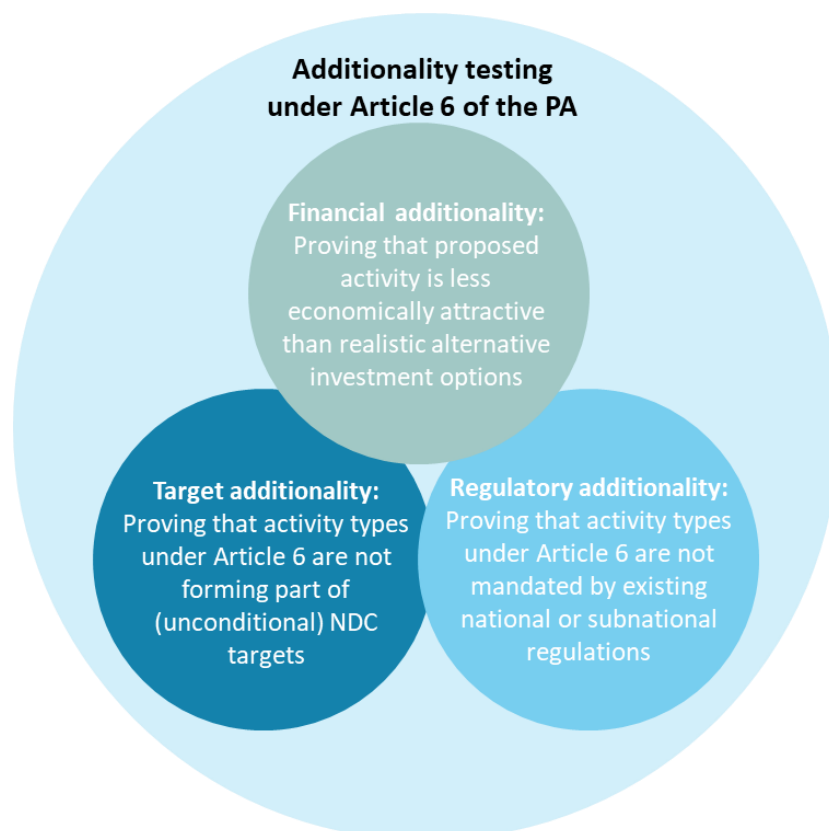
With regard to the third question, some CMM-WG participants called into question whether to integrate long-term net-zero targets into additionality determination.

In the subsequent section, we develop an integrated approach of three ‘shades’ of additionality addressing the three key questions.

3.2.1. A conceptual distinction of three ‘shades’ of additionality

In the negotiations and discussions to operationalise additionality for the Article 6 context, three ‘shades’ of the concept can be distinguished.

Figure 5: The three ‘shades’ of additionality testing under Article 6



Source: Authors

These three ‘shades’ of additionality can be applied to project or programmatic but also up-scaled approaches including sectoral and policy approaches. Especially with the latter, many difficulties are associated with the development of a generally accepted approach to additionality testing, as shown by the work of the Transformative Carbon Asset Facility (TCAF) over

several years, which is not yet conclusive. In general, two approaches to additionality testing for policy approaches are currently being discussed: Economic modelling (TCAF, Climate Teams) or qualitative approaches which rely on the estimation and projection of GHG emission developments for a large number of impacts (Wooders et al. 2016). Michaelowa et al. (2019) propose default financial parameters to operationalise the latter approach, see below.

Financial additionality

One expert emphasised in the CMM-WG discussion that the laundering of hot air should be prevented through additionality testing. In case the NDC is not ambitious, the existing CDM investment test should be used. Investment tests aim to prove ‘financial additionality’ by showing that the proposed activity is less economically attractive than realistic alternative investment options. Activity proponents need to identify the most suitable analysis method: simple cost analysis, an investment comparison analysis or a benchmark analysis. If the credit sale is the only source of revenue for the project (e.g., destruction of industrial gases), a simple cost analysis showing that the project generates additional costs is sufficient. Alternatively, if an activity can generate revenues or savings beyond the sale of credits (e.g., generation of electricity from renewable energy), an investment comparison or a benchmark analysis is required (Shishlov and Bellassen 2012). These approaches have been widely applied under the CDM with regulators specifying standardised levels of parameters, e.g., an IRR benchmark differentiated by country. While some CMM-WG discussants stressed the potential for gaming with investment testing as a lesson learned from the CDM, others stated that growing experience of auditors and regulators has reduced gaming over time.

At the sectoral level, commercially viable investments in (best available, or common practice) technologies must be considered in the sectoral emission reference scenario for the crediting period if additionality is not tested for each activity.

The test for regulatory policy instruments proposed by Michaelowa et al. (2019) (applying a payback period threshold for users of mandated technologies) is derived from the investment test approach.

Regulatory additionality

Parties to the PA will implement policies and measures that mobilise mitigation to achieve their NDC commitments. When authorising transfers, host Parties must be certain that they are not transferring mitigation that is anyway mandated by law in their country. The concept of regulatory additionality has been applied by domestic carbon market standards, in particular for generating offsets for subnational emissions trading schemes in the US.

Special considerations should be paid to cases where the implementation of the regulation is doubtful. For example, if a government has a specific regulation but does not have the power to enforce it, the activity may still be considered additional from the regulatory test point of view. Here, enforcement test thresholds regarding the level of enforcement actually achieved can be applied.

In CMM-WG discussions, there was a general consensus that policies and regulations must be considered in additionality determination. A key aspect raised in this regard was the difference between theory and practice as the introduction and impact of new policies is not always straightforward, and policy implementation may take more time than envisaged. Given that situation, the question is whether regulatory additionality must be tested frequently ex-post.

At the level of project or programmatic activities, there could be a check whether the activity (e.g., use of a specific technology) will be mandated by policies in the short-term future (i.e., during the initial crediting period). This “regulatory” additionality requires a complete and consistent mapping of policies with clear direct financial or regulatory impact on the activity. If a policy is not considered to have an impact or the policy is not enforced, this must be robustly explained and documented.

For sector-level crediting, robustly estimated impacts of different policies on the observed emission levels must be calculated into the sectoral emission reference scenario against which additionality is determined.

The proposals by Michaelowa et al. (2019) that i) carbon pricing instruments should only be allowed to generate credits if they exceed a pre-determined threshold (e.g. 5 EUR/t CO₂ for developing countries) and ii) that cap and trade schemes should only be deemed additional in the absence of over-allocation of allowances also belong to the category of regulatory additionality.

Target additionality

Even if all countries have ambitious targets and there is no double counting, there will still be a need to see whether sectoral caps/strategies are stringent, so that the buyer does not diminish domestic ambition.

In the case of sectoral approaches, the emissions reference scenario against which additionality is determined thus must either be below or at the level of sectoral emissions pathways in line with the multi-year or single-year NDC target (target referring to the end of the NDC implementation period), provided it does not include ‘hot air’. The countries’ differentiation between unconditional and conditional targets will need to be taken into account at the sector level.

For projects and programmatic approaches, the determination of target additionality is more complex as the specific type of quantitative and qualitative unconditional targets, underlying assumptions, projections and plans of the host country need to be taken into account. In case the NDC targets have been developed in a bottom-up manner, the host country has most likely taken into account the GHG emissions impact of ongoing and planned activities/policies and derived the respective NDC target accordingly. If the proposed crediting project does not form part of the measures foreseen to reach a certain NDC target, is not tackled by policies required for NDC implementation or is not commercially viable, then the project can be considered additional. When developed in a top-down manner, implying that no specific measures are associated with the NDC target, NDC additionality gets even more difficult to prove. One way would be to allocate certain emission reduction responsibilities to reach a sectoral NDC target to installations or actors in a sub-sector. Alternatively, a benchmark can be introduced that complies with the level of ambition required for reaching the unconditional target.

Proving target additionality against LT-LEDs is particularly challenging because LT-LEDs take a variety of different forms and are unlikely to become more comparable in the near term. For example, many LT-LEDs refer to different types of neutrality such as carbon, GHG or CO₂ neutrality, and there is no common understanding of those terms. In addition, a remaining question in this context is whether market-based cooperation is a way for a host country to reach an LT-LEDs goal.

3.2.2. Distinguishing between additionality and vulnerability of activities

Over the last years, a concept related to but not identical to additionality has emerged in discussions on crediting mechanisms. The concept of ‘vulnerability’ relates to ongoing projects at risk of being discontinued in case they do not receive any revenues from emission credit sales. The emergence of this definition is linked to the acrimonious debate on whether activities registered under the CDM should be allowed to transition to the new carbon markets under the PA. A methodology for assessment of vulnerability has been developed by the Oeko Institute and New Climate Institute (see Warnecke et al. 2017).

The idea of vulnerability explains why Gold Standard asks projects at the time of renewal of their crediting period to demonstrate ‘ongoing financial needs’ (OFN) to ensure carbon finance is directed to where it is most needed. OFN is a qualitative assessment that aims to demonstrate that the finance coming from the sale of credits is material to the ongoing sustainability of the project (Gold Standard 2021). Gold Standard requires proof of OFN as a criterion for re-registration of activities from other standards to the Gold Standard, if their crediting period predates January 2016.

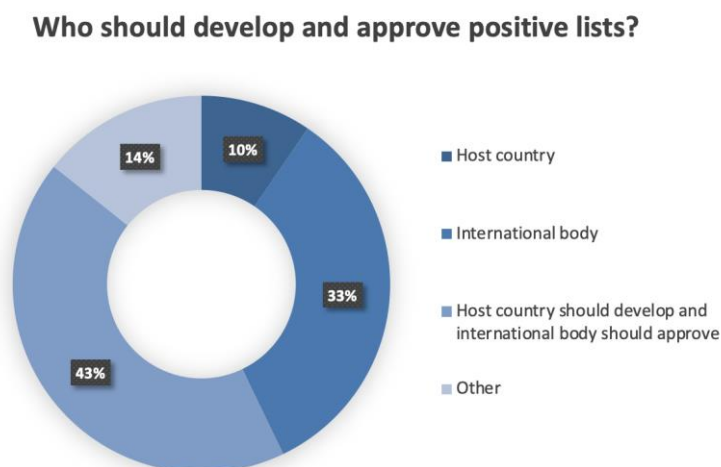
The OFN assessment should be differentiated from a re-assessment of additionality as it does not take into account new regulations. We would like to stress that there is no link between the additionality of a project and its vulnerability. Since additionality is tested ex-ante, at the point of the investment decision, additionality is different from ‘vulnerability’ which is only assessed ex-post. An activity that has been truly additional at the time of its investment decision should not be ‘deprived’ of revenues from carbon credit sales. What is clear is that activities featuring OFN are more likely to have been additional at the time of investment than activities not featuring OFN.

3.2.3. The role of positive lists under the PA

Under the PA, positive lists could be developed at the national level to satisfy the three ‘shades of additionality’ in the national context. Alignment with investment barriers and mitigation costs, existing regulation and policies as well as NDCs and LT-LEDS would need to be taken into consideration for that. To avoid positive lists becoming obsolete, lists would need to be updated frequently.

Four out of five survey respondents agreed that positive lists can be a valuable tool for additionality testing. When asked who should develop and approve positive lists, 42.9% of respondents agreed that host countries should develop their own positive lists, which would then be approved by international bodies. Another 33.3% believed that an international body should be solely responsible. Only 9.5% agreed that the host country should develop the list on its own.

Figure 6: Expressed approval preferences for positive lists



Source: Authors

Regarding the regular updating of positive lists, opinions were very diverse: Approximately a quarter selected every three years, another quarter favouring every five years and other significant percentages chose to update in line with NDC implementation periods or on a case-by-case basis. All participants felt that updating every 10 years would be too infrequent, however. Several of the participants that selected 'other' felt that updates should be aligned with advancement in technology or other benchmarks.

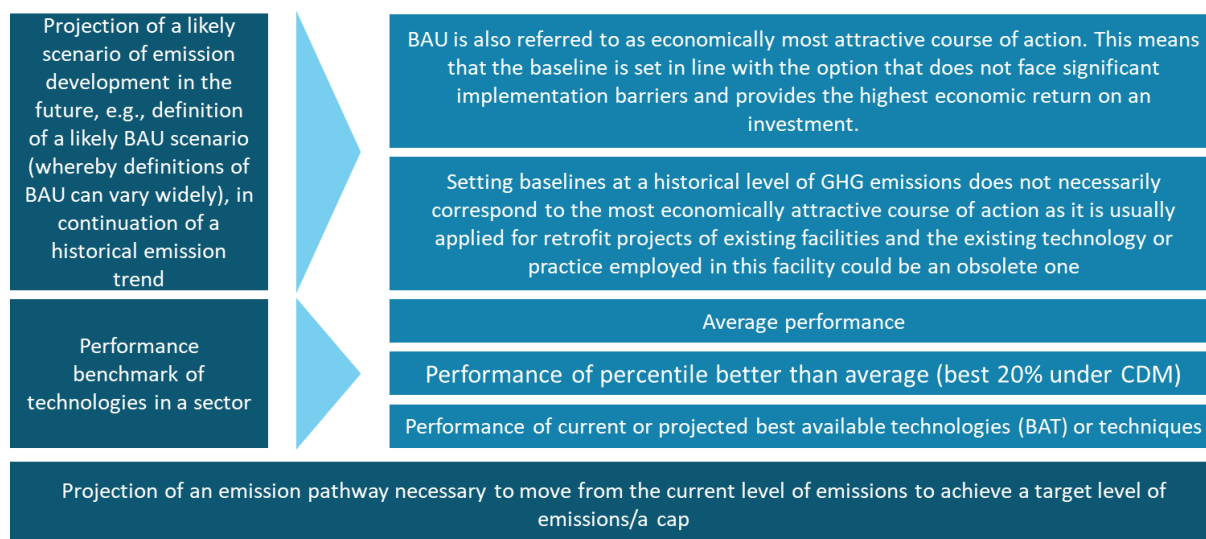
4. Baseline setting methodologies

This chapter defines approaches to baseline setting, then looks at the evolution of baseline setting approaches under the KP and finally turns to the discussion of baseline setting methodologies in the PA context, summarising views and issues raised by workshop and survey participants.

4.1. Principal approaches to crediting baselines

In general, there are various options for setting a crediting baseline, inter alia, through:

Figure 7: Options for crediting baseline setting



Source: Authors

We now discuss how baseline approaches have developed over time.

4.2. Evolution of baseline setting approaches under the Kyoto Protocol

Under JI and CDM, a multitude of baseline setting approaches have been applied. In the Marrakech Accords, similar but not identical guidance on baseline setting was provided for both JI and CDM. For JI, the Accords specified that a baseline shall be set on a project-specific basis and/or use a multi-project emission factor, take into account relevant national and/or sectoral policies and use conservative assumptions (UNFCCC 2002). Under JI, the JISC developed 'Guidance on criteria for baseline setting and monitoring' in 2006. For baseline setting, the JISC provides three options: (1) a JI-specific approach based on guidance provided in the Marrakech Accords; (2) a methodology for baseline setting approved by the CDM EB; or (3) an approach for baseline setting already taken in comparable JI projects. For the revision of the JI guidelines, it was proposed that the host Party can develop standardised baselines based on criteria which are set and periodically updated by the JISC and that the host country can decide on a lower transaction volume of JI credits (UNFCCC 2016b, Annex I).

For the CDM, the Marrakech Accords defined three generic baseline methodology approaches (UNFCCC 2002):

- a. existing actual or historical emissions
- b. emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment
- c. average emissions of similar project activities undertaken in the previous five years, in similar social, economic, environmental and technological circumstances, and whose performance is among the top 20 percent of their category

Under the CDM, baselines can be established by project participants, in a conservative manner and by taking into account relevant national and/or sectoral policies with the option of sim-

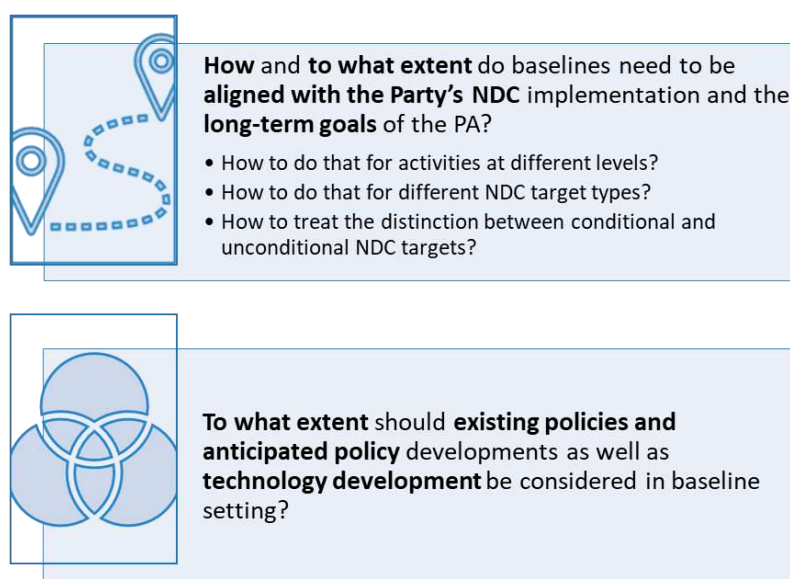
plified procedures for small-scale CDM projects (UNFCCC 2002). As the CDM matured, separate baseline tools applicable to different baseline methodologies were developed by the UNFCCC Secretariat. In addition, a generic ‘combined tool to identify the baseline scenario and demonstrate additionality’ was developed in 2006.

Many baseline setting approaches rely on a bottom-up estimation of parameters (e.g., emission factor of current technology used). This implies that the monitoring of such parameters is time-consuming and entails high transaction costs for control groups (e.g., AM 0046 for efficient lighting). Baseline methodologies and key parameters need to be regularly updated to reflect technological changes to ensure environmental integrity (Michaelowa et al. 2019). One option to lower the transaction costs is to move towards the use of top-down parameters such as conservative defaults for key parameters. From 2011 onwards, the CDM EB started with the development of standardised baselines building on conservative default factors for key parameters or emission-rate thresholds or benchmarks either through the staff of the UNFCCC Secretariat for global applicability under specific eligibility criteria or through host countries and their consultants (see UNFCCC 2012).

4.3. Revision needs to baseline setting approaches in the PA context

In the context of the PA, several key questions for baseline setting arise as outlined in Figure 8.

Figure 8: Key questions faced by baseline setting under Article 6



Source: Authors

4.3.1. Appropriate baseline setting approaches for different activity types

In the context of the PA, where Parties are urged to increase their ambitions every 5 years, the use of BAU as (crediting) baseline is not target-oriented. Therefore, the latest Article 6.2 draft negotiation texts establish ‘below BAU’ as a minimum criterion, with many more ambitious approaches to baseline setting currently being discussed under the A6.4M. The draft RMPs include different baseline setting options comprising a BAT approach, a benchmark or

a performance-based approach (note that these options are seen as distinct while in our definition they are different outcomes of a performance benchmark). In case these three approaches are not considered economically and technologically viable, baselines can also be based on projected emissions (akin to known BAU baselines) or historical emissions (UNFCCC 2019a; UNFCCC 2019b). Therefore, the current negotiation texts essentially assemble all possible baseline approaches.

The listed approaches to baseline setting have different advantages and disadvantages. Baselines based on projections have in common that they involve a number of assumptions on future developments which can result in growing uncertainties the longer the baseline validity period becomes. Whereas emission pathways defined in IPCC Assessment Reports build on extensive modelling exercises which can be broken down to sectoral pathways, country-specific BAU scenarios are confronted with a large number of assumptions made regarding the reference level and could potentially not be sufficiently ambitious. Performance-benchmark approaches set baselines at a desired level of performance which can be less stringent (e.g., average performances) or more stringent (e.g., high percentiles or BAT). BAT approaches have been criticised for being excessively stringent, but the level of aggregation (sub-national, national, regional, global) is decisive. Benchmark approaches are in general technology-focused and can thus better reflect technological development. However, the development of benchmarks requires access to the relevant data and they are only suitable for homogenous sectors, mostly industry, and should not be applied in complex and heterogenous sectors (Schneider et al. 2012).

When asked to rate baseline setting approaches regarding their appropriateness, the views of survey participants were very skewed, with all choices (historical emissions, (below) BAU, projected emissions associated with (un)conditional NDC, benchmarks, BAT) receiving an average score of 2 out of 4 (“appropriate under specific circumstances”). The highest scoring choices were projected emissions associated with the unconditional NDC and benchmarks derived from BAT, both with scores of 2.82 out of 4. On the question whether baseline setting should contribute to ambition raising, a large proportion (32.3%) felt neutrally, though the majority still agreed. In addition, most respondents agreed with the need to establish a default approach to setting crediting baselines in the context of the PA. Overall, there was a consensus that one-size-fits-all approaches should be avoided, but clear guidance could be given. Respondents agreed that their answers were dependent on what this “default approach” would look like. Some workshop participants also cautioned against benchmarking as this has only worked in specific cases. Often, there were different understandings of benchmarks in carbon markets. Several participants noted the limited access to data from the industry to establish robust benchmarks. In the case of national benchmarks, one would run into questions of how to consider technology transfer and climate finance impacts.

4.3.2. Upscaling baselines

As a rule of thumb, it can be noted that baseline setting gets more complex with increasing scale/scope of the activity, as a higher number of influencing factors needs to be considered (Wooders et al. 2016). At the activity-level, baselines are set in accordance with GHG emission projections without the activity’s impact or a technology-specific benchmark is derived from industry data. At the sectoral level, it is more challenging to estimate and project GHG emission developments due to the larger number of actors and more indirect impacts. Key in this

case is the aggregation level in terms of which processes are exactly focused upon. The choice of the “boundary” or “level of aggregation” can bring some gaming risks and must be robustly justified.

Regarding baseline setting for policy approaches, experts suggest a need to first determine the boundaries of the baseline scenario including the most relevant drivers that will presumably affect emissions pathways in the absence of the respective policy (Kreibich and Obergassel 2018). There are two ways in which such emissions pathways can be identified, either through the application of external projections for main drivers of emissions or through a bottom-up analysis of sub-sectoral emissions drivers and trends which are matched against nation-wide emission projections (Ahonen et al. 2020).

4.3.3. Linking the baseline to the long-term target of the PA – from short- to long-term

Under the KP, baselines usually reflected on what *is*. However, in the context of the PA’s ambition cycle, the question of what *should be* is moving into the foreground. This would imply a shift from BAU projections, historical emissions and average performance benchmark-based baselines to high percentile or BAT-technology-determined benchmarks and projections in line with PA long-term-target-compatible pathways. We now discuss the consequences of such PA alignment approaches starting with short-term, static aspects and ending with long-term, dynamic considerations.

4.3.3.1. Inclusion of existing and planned policies in static baselines

An unresolved question in Article 6.4 negotiations on baseline setting is the role of existing and planned policies. The first and second iteration of the draft text outline that each methodology needs to take into account relevant policies, if appropriate (UNFCCC 2019a, para. 37; UNFCCC 2019b, para. 37). In addition, the second iteration specifies that the methodology needs to be consistent with the NDC of the host Party (UNFCCC 2019b, para. 37). The NDC lays out the *planned* policies and measures of the host Party.

The negotiation texts thus leave ample room for discussion on the definition of a ‘relevant policy’. For example, whether this includes only existing or also planned policies as well as activities. In this regard, the extent to which enforcement is considered, especially in the context of NDCs, is decisive. In general, whether methodologies should also consider planned policies has important implications for sectoral and policy crediting.

An issue that survey respondents largely agreed on was the consideration of existing policies in baseline setting. 50% ‘strongly agreed’ that existing policies should be taken into account, while 37.9% ‘agreed’. Only three, i.e., 4% of participants disagreed with the statement. There was slightly less consensus on the issue of planned policies. More than half of respondents agreed or strongly agreed that planned policies should be considered, but the group was less convinced on this topic than consideration of existing policies. The disagreement primarily stemmed from the uncertainty of whether or not planned policies would actually be implemented in the short term. For this reason, some participants felt that only existing policies should be considered. In the words of one participant, “planned policies are as good as non-existent”. Even those who agreed that planned policies should be considered often included comments suggesting that the likelihood of such policies being enacted needs be taken into account.

During the second workshop, the relationship between policy gaps and crediting potential was discussed. It was noted that the greater the policy coverage and/or ambition, the smaller the crediting potential and the fewer the niches for the crediting of policy gaps. It was suggested that the implementation of climate policies consistent with the long-term goals of the PA would ultimately make international crediting obsolete. It was also suggested that Article 6 was likely to have low potential in EU Member States with comprehensive climate policies.

4.3.3.2. Consideration of NDCs in static baseline setting

From a theoretical perspective, it will be in the host country's own interest to set the crediting baseline in line with the unconditional NDC to prevent any over-crediting. In practice, however, the (un)conditionality of NDC targets has never been clearly defined and the understanding of what the concept entails diverges significantly, also in its implementation. However, such a distinction will be pivotal for buyer countries and entities, so that they can be sure to not undermine environmental integrity by promoting activities which could have been implemented unilaterally. Furthermore, NDCs may contain 'hot air', thus undermining the host country's incentive to avoid over-crediting.

Over 70% of survey respondents agreed that baseline setting should include the consideration of unconditional NDC targets, and 61.8% favoured consideration of conditional NDC targets, as well. In workshop discussions, it was suggested that the level of stringency of crediting baselines depends on the extent of the activity's planned contribution to NDC implementation. In some cases, this could be easy to determine (e.g., in case of sectoral crediting against a sectoral NDC target), while in other cases, the NDC targets may not readily inform a specific activity's role in its implementation. If the activity's contribution is not needed for NDC implementation, stringent baselines would not be needed.

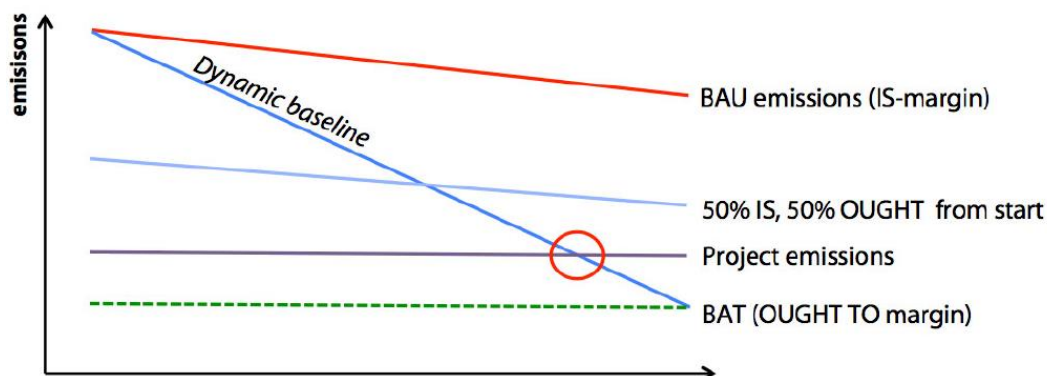
4.3.3.3. Making baselines dynamic

Carbon market actors are increasingly considering the use of dynamic baselines that are aligned with PA's ambition cycle despite no mentioning of such an approach in the current Article 6 draft negotiation texts. There are two ways of rendering baselines more dynamic:

- 1) One option would be to use baselines that build on key parameters which are estimated ex-ante, but credits are only issued for ex-post calculations of these parameters based on collected and validated data (Michaelowa and Butzengeiger 2017; Michaelowa et al. 2019). As a consequence, dynamic baselines adjust automatically to changing GHG emissions trajectories and reflect what has happened and not solely projections.

- 2) Another option is to design baselines in a manner such that the baseline emissions intensity decreases over time through the application of a dynamic transition parameter (Hermwille 2020) or ambition coefficient (Michaelowa et al. 2021b). The baseline emission intensity would gradually move downwards from a BAU trajectory (IS-margin) towards a normative/policy reference (OUGHT margin) which can be set at different levels including at BAT, the national or sectoral NDC or long-term decarbonisation pathway or in line with a net-zero pathway.

Figure 9: Transitioning to a normative reference/OUGHT margin



Source: Hermwille 2020

The approaches have in common that they prevent the overselling of mitigation outcomes and contribute to the achievement of Parties' NDCs. However, some project developers fear that the first approach to dynamic baselines could contribute to increased unpredictability, thus undermining carbon market incentives. Option two therefore offers a heuristic solution in this regard, striking a balance between predictability and stringency by combining ex-ante fixed declines of baseline parameters and updates of all baseline parameters when the crediting period is renewed. This will provide more certainty for project owners and investors. Another heuristic solution would be to apply relatively short crediting periods, so that the baseline would need to be updated rather sooner than later. However, this might be appropriate only for some technologies as the crediting period should be in line with the payback period of a technology to give an investment incentive.

In line with the preceding discussion, one workshop participant stressed that project developers do not like moving targets and that it would be helpful if the baseline and attribution approach remains fixed from the beginning. Some experts favoured a baseline-setting approach where baselines are more regularly updated rather than fixed ex-ante and potentially for a long period of time. In general, the private sector activity developer will more likely favour the second approach to dynamic baseline setting, whereas a governmental actor might favour the first, as it ensures that generated mitigation outcomes are real.

4.3.3.4. Considering LT-LEDs in baseline setting

Besides the NDC and related policy documents, baseline setting approaches could also consider countries' LT-LEDs and related roadmaps and action plans. LT-LEDs are supposed to provide the long-term vision of the transformation required to meet the PA's long-term goal. Ideally, NDCs and LT-LEDs are aligned. In this case, the crediting baseline could be set in line with the NDC/LT-LEDs trajectory without the risk of undermining incentives for the host country to

undertake unilateral action (Michaelowa et al. 2021a). However, there are no agreed modalities on developing LT-LEDS and the NDC/LT-LEDS emissions trajectory is often not aligned with the PA long-term goals and could potentially even include ‘hot air’. This implies that crediting baselines might need to be set at a level that is more stringent than the NDC/LT-LEDS pathway (Michaelowa et al. 2021a). Against this background, it is important to discuss how leading experts in this field see LT-LEDS informing the setting of crediting baselines. LT-LEDS could for example be translated into sector-level roadmaps and action plans as part of the baseline setting process.

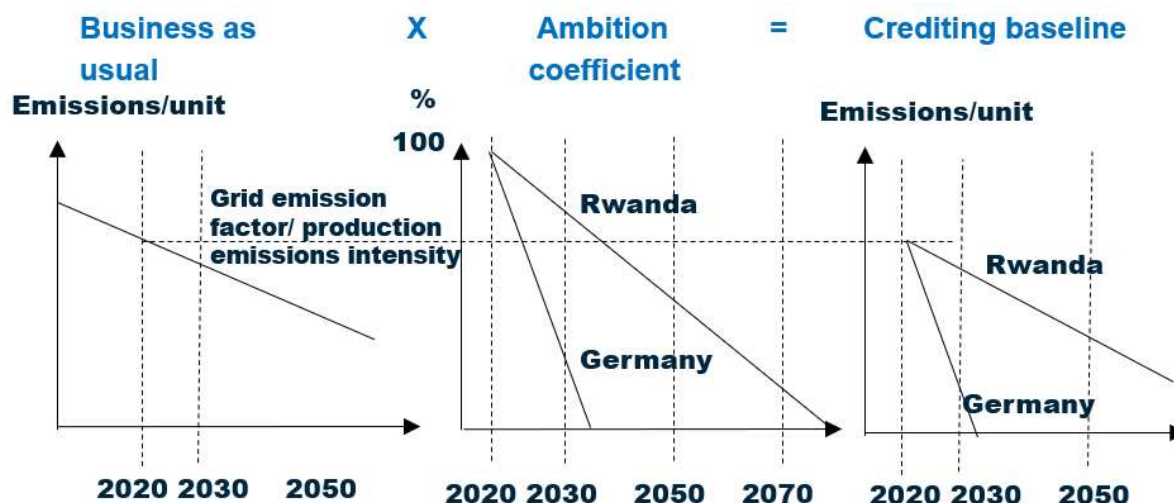
63.2% of survey respondents agreed that long-term targets and strategies should be considered, with a small fraction disagreeing. Some respondents felt neutrally, noting that final outcomes of LT-LEDS are uncertain. Overall, many respondents pointed out that long-term strategies are dependent on finance, international partnerships, and other variables, and require individual assessment. Consideration of individual circumstances was a common theme throughout responses to many questions.

4.3.3.5. Alignment of baseline setting with PA-compatible pathways

A particular approach to render baselines more dynamic with a long-term perspective is the alignment with the 1.5 °C emissions pathway at the country level. Michaelowa et al. (2021b) propose the use of a so-called ‘ambition coefficient’ which is applied to the BAU scenario (calculated according to CDM baseline methodology), so that it is gradually decreased and reaches over time a ‘normative reference’. This ‘normative reference’ level is then in line with the PA’s long-term goal of reaching net zero around mid-century and sustaining net zero in the second half of the century.

Michaelowa et al. (2021b) set the normative reference at net zero. The derivation of the “ambition coefficient” is done according to net zero emissions pathways at the national level. The ambition coefficient applicable during a certain crediting period should be determined ex-ante to ensure investment certainty, ideally in line with NDC updates and the global stocktake. In a CMM-WG workshop, Axel Michaelowa applied the concept to a case study on grid connected electricity. First, the grid emissions factor is determined as per CDM tool 07, followed by the identification of the year in which net-zero is to be reached. In the case of Rwanda, the target year for reaching net-zero could for example be 2070. In a second step, the country-specific ambition coefficient is applied for each emission reduction vintage year (see Figure 10).

Figure 10: Application of the ambition coefficient to BAU



Source: Authors

In the survey, a majority of respondents also favoured including consideration of 1.5° C compatible pathways, though some answers did point out that this may not be an achievable goal for many countries. In workshop discussions, various participants emphasised that such alignment would require heavy lifting to get it to the negotiations and to get sufficient support for it. It was also mentioned that the baseline should not be extrapolated for 30 years. The regular updating of baselines over time was set against the application of an ambition coefficient. Participants further discussed whether the ambition coefficient would deliver on an 'overall mitigation in global emissions', understanding that conservative baselines are one of the options in negotiations to operationalise this principle. However, several participants argued that if 'overall mitigation in global emissions' is understood to be mitigation not to be claimed by the host country or buyer, the ambition coefficient cannot replace the approach of cancelling a share of mitigation outcomes generated. It was also noted that the concept would tick two boxes as negotiators who are attached to CDM baseline approaches would be pleased as well as benchmark promoters since the concept has a link to net zero targets.

5. Oversight and host country role

5.1. Oversight and host country role under the Kyoto Protocol

In general, two levels of oversight exist that play a role in baseline-and-credit mechanisms: international and host country oversight. In the context of the KP, the CDM has been subject to international oversight by the CDM EB. The role of the CDM host country was limited to approving projects and authorising project participants. However, some CDM host countries took an active role in the project approval process, requiring e.g., proof of specific sustainable development co-benefits (e.g., Malaysia, South Africa, Uruguay), requiring a minimum credit sales price (e.g., China) or levying a tax on CER issuances (e.g., China, Vietnam). Track 2 JI mirrors the CDM experience, with the JISC taking the role of the oversight body.

The first JI track built on host country oversight, meaning that the host countries could largely introduce their own rules regarding project approval and credit issuance. In case of JI host countries with ambitious caps, host country oversight was deemed to ensure environmental

integrity. The challenge in this case was that JI host countries with ‘hot air’ did not have an incentive in ensuring additionality and robust baselines¹. The review of the JI guidelines in May 2016 aimed to address this issue by proposing draft modalities and procedures for a single-track JI with a balanced oversight involving both the host country and international level. However, the revision which aimed at combining international and host Party oversight was never adopted.

5.2. Oversight and host country role under the Paris Agreement

The experiences under JI (both tracks) are particularly relevant for Article 6.2 cooperative approaches. Host country oversight in cooperative approaches could take the same form as under the first or the second track or the merged version with some international oversight. In the end, it will be up to the cooperating Parties which cooperation model they agree upon. However, international oversight will also play a role in Article 6.2. Oversight in the A6.4M, on the contrary, will take similar forms as under the CDM.

International oversight on Article 6 methodologies will differ between cooperative approaches and the Article 6.4 mechanism:

- **Article 6.2:** Parties cooperating under Article 6.2 are subject to extensive reporting requirements on how the approach’s environmental integrity is ensured, including an initial report at the point of authorising the first ITMO transfer, an annual information comprising accounting information and a regular report which will be included in countries’ biennial transparency reports (BTRs). An Article 6 technical expert review (TER) assesses the reports that have been submitted by the participating Parties and flags concerns as well as makes recommendations to improve consistency with the guidance (UNFCCC 2019d). Next to the Article 6 TER, there also exists a TER under the enhanced transparency framework of the PA, comprising BTRs and GHG inventories. The results of the Article 6 TER are considered in the general TER which compiles a UNFCCC synthesis report allowing for some scrutiny from the international community. In case of systematic issues, these could for example be forwarded to the Article 15 Compliance Committee. The TER process is thus of central relevance for international oversight and a precondition for ‘pressure’ on states to ensure compliance.
- Reporting formats and content as well as the review guidelines will play an important role in determining the degree of oversight in Article 6.2 cooperative approaches. In addition, mitigation leading to ITMOs will need to be verified, so an auditing process will take place which is carried out by an independent third party which also adds some scrutiny.
- Regarding international oversight in methodologies, the most challenging aspect will be establishing the link to NDC targets as these are nationally determined and their stringency cannot be assessed by international bodies or experts. Therefore, clear guardrails are required that ensure the application of conservative parameters.

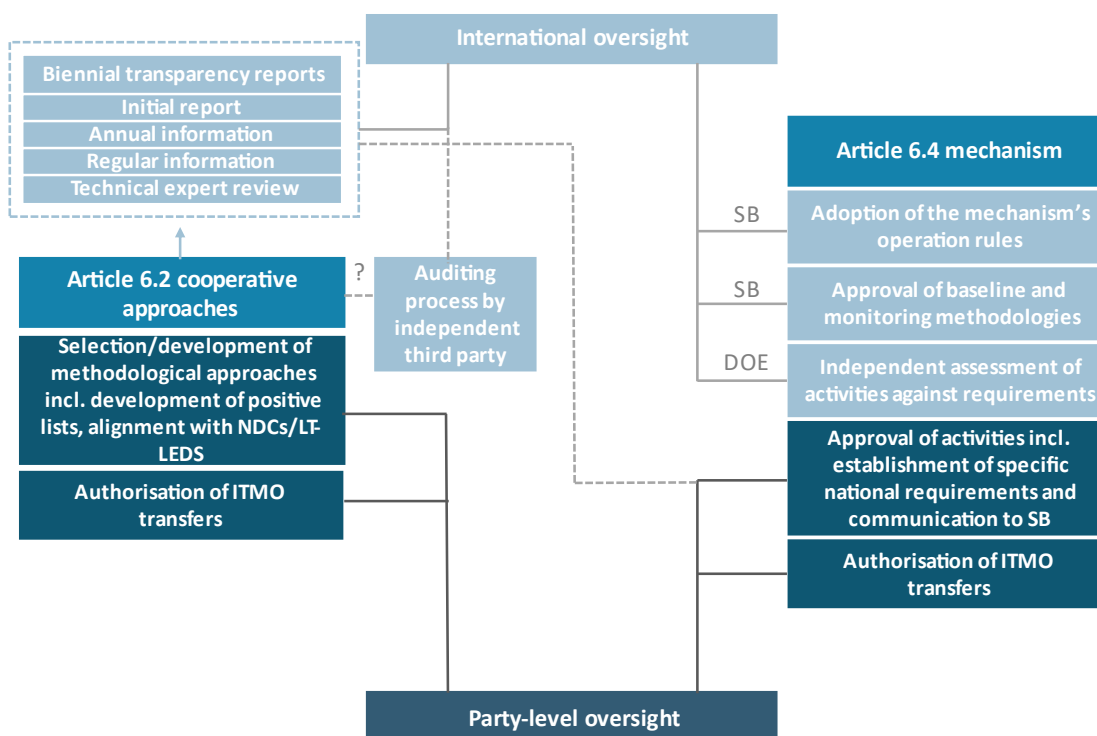
¹ For example, Russia and Ukraine sold several hundred million JI credits in a short period spanning late 2012 and early 2013 with spurious project documentation.

- **Article 6.4:** Under the A6.4M, there is international oversight in place through the SB which approves baseline and monitoring methodologies and adopts the rules for the mechanism's operation. Another form of international oversight is the independent assessment of the activity against the requirements set out in the RMPs by a designated operational entity (DOE). Once the DOE confirms the positive outcome of the validation, it needs to submit a request for the activity's registration to the DOE.

Party-level oversight on Article 6 methodologies can take the following two forms:

- **Article 6.2:** In a cooperative approach, oversight is performed by both the host and acquiring Party. Both Parties agree on a specific methodological approach. They are relatively free in their decision as long as the methodological approach complies with minimum standards set in the Article 6.2 guidance such as stringent reference levels, baselines set in a conservative manner or below BAU emission projections (including by taking into account all existing policies and addressing potential leakage) and minimising the risk of non-permanence of mitigation and addressing reversals, if they occur. The authorisation of an activity is key as it triggers the applicability of the Article 6.2 guidance. There is also some party-level oversight in preparing the reports on environmental integrity and accounting in the context of NDC implementation. As ITMOs shall be "verified" per the Article 6.2 guidance, there will likely be a role for (independent) third Party auditors, chosen by the participating Parties.
- **Article 6.4:** The RMPs differentiate between the approval of activities and the authorisation of ITMO transfers. In both cases, the host country has the oversight and can potentially implement domestic standards that need to be met.

Figure 11: International oversight and party-level oversight under Article 6



Source: Authors

5.2.1. Additionality testing through host countries

The (approval and) authorisation process (of actors and activities to generate ITMOs) is where host countries' considerations materialise.

The current draft RMPs for Article 6.4 differentiate between an approval and authorisation process. Prior to a request for registration, the host Party shall provide the SB the approval of the activity. This approval comprises the following elements: Confirmation and information on how the activity fosters sustainable development in the host Party; approval of a potential renewal; an explanation of how the activity relates to and how the expected mitigation outcomes contribute to the host Party's NDC. In addition to the approval, the authorisation of public and private entities to participate in the activity shall be provided to the SB. Once the activity has issued mitigation outcomes, the host Party needs to authorise the transfer of ITMOs for use towards NDCs or for other international mitigation purposes (UNFCCC 2019a; UNFCCC 2019b; UNFCCC 2019c).

This implies that the host country can use the authorisation process of activities to check how the foreseen additionality testing approach would for example comply with its NDC. Besides, the host Party may specify to the SB what baseline approaches and methodological requirements it intends to apply for A6.4 activities. These requirements need to be in line with the RMPs but could for example mandate the most stringent approach. This gives the host Party control over the kind of activities it wants to see promoted. In this manner, the host country can for example ensure that A6.4M-approved additionality tools are applied and that the relevant host-country specific parameters are applied. The authorisation process can then take the form of a control of whether the activity developers comply with international rules but also national requirements. Under the A6.4M, it is also foreseen that a stakeholder consultation process is carried out as part of the authorisation process. This enables the participation of different interest groups in the decision-making process.

For Article 6.2 cooperative approaches, the draft guidance only foresees an authorisation process. However, the approaches build on bilaterally/multilaterally agreed methodologies, meaning that the host Party should have a say in the applied additionality tool. An example of how this could work in practice is the Joint Crediting Mechanism (JCM) where host countries and Japan set up 'Joint Committees' to approve baseline methodologies and agree on credit transfers. Therefore, host Parties should develop their own understanding of additionality for their particular host country context. Here, they could exploit the synergies with NDC development:

- Financial additionality could for example be linked to the development of marginal abatement cost curves for specific mitigation options which are used in the NDC development process to identify the most efficient mitigation options.
- Regulatory additionality will consider existing policies as per Article 6.2 guidance and host countries may identify the relevant policies based on their NDC implementation strategy.
- Target additionality would benefit from clear links to targets, also regarding their (un)conditionality. Host Parties can also align guidance with information from their NDC, background documents used to determine NDC targets and public or non-public NDC implementation strategy documents.

In order to exploit such synergies between NDC development and Article 6 readiness, frequent coordination with NDC lead actors (lead ministry, Climate Change Committee) is required as well as good inter-ministerial coordination and stakeholder engagement processes.

In general, there are two ways a host country can go about ensuring that its understanding of additionality is streamlined in approval and authorisation processes under Article 6: a case-by-case assessment or standardisation. Standardisation can take the form of positive lists developed at the national level to satisfy host country needs (see below).

A key question to consider is whether actions under the unconditional NDC targets automatically become non-additional. In CMM-WG workshop discussions, it was cautioned that NDC targets are probably not the optimal point to anchor additionality determination. Even if it works in one host country context, it does not necessarily work in another, due to the unofficial nature of what conditional/unconditional means. Many NDCs do not specify what is included in “unconditional” and what in “conditional” targets, nor a prioritisation of activities dependent on the amounts of finance received. Therefore, there is no objective way of deciding what project activity corresponds to which mitigation trajectory.

Clarity regarding unconditional and conditional targets would need to come from Parties’ own efforts. NDC commitments need to be itemised towards clear mitigation activities. Also, more transparency needs to be provided regarding possible finance sources for the different NDC targets (for example if unconditional targets depend solely on domestic funding or not). In the end, it would be up to the Party to clearly define whether conditional NDC targets can be achieved by Article 6 cooperation and still be deemed achieved despite corresponding adjustments to the NDC emissions balance. So, it is in the host Parties’ prerogative to determine what needs to be considered when determining ‘target additionality’ next to financial and regulatory additionality, which would be required anyway.

One expert noted that many NDCs do not specify the proportion of climate finance. Therefore, it would be difficult to see how climate finance is allocated objectively to the conditional and unconditional target. Discussants agreed that an activity should in general not go into a sector that is earmarked for climate finance. It was further suggested that if the host country is fully aware and benefits from the mitigation outcomes to achieve its NDC, it should be focused on this and not so much on the distinction between its unconditional and conditional NDC target. Several discussants stressed their preference of having fewer credits over facing large uncertainty.

As mentioned above, host countries might increasingly use positive lists for automatic additionality at the national level. By adopting positive lists, countries have more clarity and control on the voluntary cooperation. Moreover, positive lists send a clear and early signal to potential investors and project developers.

In the international climate policy arena, the development of positive – and negative lists- has traditionally followed a top-down approach (e.g., CDM positive lists). Examples of positive lists developed at a national level can be found in domestic offset systems such as the Alberta Emission Offset system and the California Compliance Offset Program. Under the PA, no clear guidance exists, but it is very likely that international carbon market transactions will rely on positive lists developed by host countries in the future. Steps in this direction can already be found. For example, Peru is currently developing a national framework for eligible mitigation outcome activities, including a positive list of technologies and/or subsectors.

In contrast to the CDM and voluntary carbon markets, positive lists under the PA do not have an overarching goal reducing transaction cost for additionality determination. Positive lists need to consider additional objectives such as not undermining NDC achievements. Also, the unconditional and conditional NDC targets require positive lists to have different considerations towards them. Moreover, the criteria to be used by host countries to arrive at a positive list will vary depending on if it aims to be used for Article 6.2 or Article 6.4 activities.

The frequent updating process of positive lists for additionality is pivotal to avoid that environmental integrity is undermined. The update process of national-level positive lists can be more flexible than internationally agreed upon ones; a frequent update process under the Article 6.4 SB might be difficult to achieve. Fixed intervals linked to NDC implementation periods, and the establishment of predetermined rules could be introduced to achieve a certain level of predictability for activity developers. Updating-related rules could follow a technology-specific approach. Well-established and mature technologies with an advanced penetration rate that form part of a positive list should be subject to a more frequent updating process (~3 years) than technologies with a low penetration rate (e.g., e-mobility in Africa). Moreover, the updating process could be triggered by thresholds (e.g., applicable as long as penetration rate is below a threshold, not applicable thereafter; applicable until relevant regulation is introduced). Thresholds should be based on publicly available data that activity developers can check.

However, retroactive applications to already registered activities should be avoided to provide predictability for activity developers. A remaining question in this context is whether such a bottom-up approach to positive lists will require international oversight, and if yes, what degree of it would be needed. Regarding Article 6.2, independent auditors and a robust and comprehensive Article 6 technical expert review can enhance trust in the integrity of the positive list. Under the A6.4M., it is essential that national positive lists are aligned with principles and rules for positive lists established by the international body. Also, a positive list would most probably have to be approved by the A6.4SB.

Many host country government representatives participating in the host country workshop expressed approval for the development of positive lists for certain activity types at the national level in order to steer private investment in the right direction. One host country representative shared experience from the ongoing consideration of a positive list. It was emphasised that a participatory process is vital when developing the positive list, including sub-national governments but also non-state actors as this provides clarity on a sector's composition and needs. Criteria which play an important role in the development of the positive list and that go beyond additionality considerations include an activity's promotion of sustainable development and the existence of safeguards against detrimental effects on the environment. The need for stakeholder consultation in the process was further stressed by another host country representative as well as the need for clear institutional arrangements in terms of an authority guiding the entire process. Another participant noted that the development of positive lists should ideally be aligned with the country's NDC, thereby identifying priority sectors and high-hanging fruit, meaning technologies with high abatement costs. Reflecting on the challenging experience with determining activity-specific pay-back periods in additionality tests, one person reinforced the idea of positive lists being a useful tool. However, the need to regularly update positive lists was mentioned by one participant, as well as the need for capacity building.

5.2.2. Baseline setting by host countries

In the PA context, the host country's role in developing baseline methodologies will be more pronounced than in the Kyoto context, due to the difficulties of finding one-size-fits-all approaches to consider mitigation targets in a context of heterogeneous NDCs. This section looks at the incentives an active role in methodology development for baseline setting could offer the host country and how the benefits can be further increased.

Next to receiving carbon finance for mitigation activities with higher abatement costs, the host country's primary interest in the context of market-based cooperation should be the safeguarding of NDC achievement. A stringent approach to baseline setting is therefore in the interest of the host country. The safeguarding of stringent approaches has also implications for the buyer country/entity as a stringent baseline implies lower numbers of credits to the buyer as the difference between the crediting baseline and the 'real' baseline is retained by the host country. The lower credit volume represents a disincentive for project developers which is why it is advisable to introduce another financial incentive. Either the host country itself 'pays' for the lower volume as it receives an own share of mitigation outcomes or the buyer does not only pay its own share but also subsidises the host country share through higher ITMO prices. In fact, also the buyer country/entity should have an interest in the host country achieving its NDC despite its Article 6 cooperation. Therefore, the sharing of mitigation outcomes and associated costs is currently discussed in many Article 6 piloting efforts.

Another implication of stringent baseline setting is that a good balance needs to be sought between stringency and provision of sufficient incentives to ensure the promotion of technologies that raise ambition in the host country. Host countries could for example prescribe the use of dynamic elements in baseline methodologies to ensure that the baseline declines in congruence with the expected level of increased ambition in its NDC revision.

During workshop discussions, it was noted that host countries could promote Article 6 cooperation by deconstructing NDC targets into detailed implementation plans at sectoral, sub-sectoral or even activity-level. This could inform where and how Article 6 cooperation could complement NDC implementation and serve as a basis for an Article 6 implementation plan. Article 6 cooperation could thus incentivise enhancements of the granularity of NDC implementation plans.

The CBDR-RC principle can be integrated in baseline setting methodologies. The Article 6.4 negotiation texts make it clear that the consideration of the respective national context is an important principle (UNFCCC 2019a; UNFCCC 2019b). As discussed in chapter 4, Michaelowa et al. (2021b) propose that the PA-aligned pathways should not look the same for each country. On the contrary, industrialised countries should reach net zero earlier than developing countries, the crediting baseline would thus fall more rapidly in the case of industrialised countries. The determination of the ambition coefficient should thereby not be based on countries' LT-LEDs as they are very diverse and often do not provide a clear pathway. Instead, fair emissions pathways based on different indicators could be developed (Michaelowa et al. 2021b):

- Gross National Income per capita
- Cumulated historical emissions
- Mitigation potential
- Geographic criteria

There is a broad number of different criteria to be chosen from a rich academic literature on fair an ambitious contribution and resulting emissions paths for different country groups and countries. It needs to be noted though that some LDCs also have relatively ambitious NDCs, while there are also non-ambitious countries relative to their development status. Therefore, the integration of the CBDR-RC principle should also consider the link to the communicated NDCs and the nature of the target in terms of its conditionality.

In workshop discussions, in which the ‘ambition coefficient’ was introduced, doubts were raised that the concept would be equivalent to apply top-down defined targets to host countries. It was clarified that the ambition coefficient relates only to baseline setting for market-based cooperation and has no implications for host country commitments. A host country net-zero target can be used as a reference if it is equally stringent or more stringent than an equivalent CBDR-RC aligned target year.

In the case of Article 6.2 cooperative approaches, the host country can introduce a number of conditions for baseline methodologies before granting approval and the authorisation of ITMO transfers. The country can thus put an emphasis on ensuring that methodologies are aligned with host country targets, plans, policies and priorities. Technology-specific baseline approaches such as BAT or other performance benchmarks can for example be stipulated if the host country wants to restrict the scope of market-based cooperation to the ‘middle-hanging’ and ‘high-hanging fruit’. It can also prescribe the use of more stringent baselines for mitigation activities in order to use a share of the mitigation outcomes towards its own NDC targets. In general, it would be important that the host country establishes precise conditions and communicates them transparently to interested buyers.

Under Article 6.4, the host country can also play an important role at the approval stage of Article 6.4 activities. As mentioned above, the designated national authority can communicate to the SB prior to participating in the mechanism what requirements it has regarding baseline approaches for activities the country hosts.

6. Conclusions for operationalising Article 6 methodologies

Environmental integrity is the key principle underpinning international carbon markets. There will not be relevant demand for emission credits if their environmental integrity is doubtful. Article 6 cooperation will be undertaken in two ways, one devoid of and one subject to international oversight. Experiences from the Kyoto Mechanisms show significant risks to environmental integrity in a situation where international oversight is absent. Therefore, it is imperative to ensure credible and robust approaches for additionality determination and baseline setting, particularly under Article 6.2.

While, under the PA, all countries make mitigation contributions through NDCs, there is no guarantee that these NDCs do not generate ‘hot air’. Thus, additionality testing remains critical in a PA context. We suggest a threefold approach to additionality testing. Financial additionality relates to the economic attractiveness of the activity, regulatory additionality to the characteristics of mitigation policies introduced by the host country and target additionality to the characteristics of the emissions target enshrined in the NDC or LT-LEDS. In the context of Article 6-related upscaling of mitigation, it is necessary to develop robust approaches for additionality testing of mitigation policy instruments; these can involve both financial and regulatory components. The currently fashionable approach of assessing the ‘vulnerability’ of activities to a discontinuation of revenues from emissions credit sales cannot substitute additionality testing, as vulnerability testing can only be applied ex-post, whereas additionality testing needs to be done ex-ante. Positive lists can be a powerful tool to reduce transaction costs for additionality determination, but need to be carefully kept up to date as otherwise they will become highly problematic when mitigation technologies become mature and cheaper.

Baseline determination under Article 6 clearly needs to go beyond BAU approaches applied under the Kyoto Mechanisms. Operationalizing this can be done by applying both short- and long-term solutions. Short-term solutions include taking into account existing and planned policies in the baseline, as well as the NDC target. Long-term solutions include a discount factor, a so-called ‘ambition coefficient’ to align the baseline with a net zero emission path consistent with the long-term target of the PA. National level ambition coefficients need to be in line with the CBDR principle. Generally, baselines need to become more dynamic, while ensuring a minimum level of certainty for activity developers. Performance benchmarks, including BAT approaches, can play a role in certain sectors but clearly are no panacea.

The role of host countries in approving activities and authorising ITMO transfers means that they will also have a relevant task to ensure additionality and credibility of baselines, particularly under Article 6.2. Countries should strive to align additionality principles and baseline setting with their NDC and LT-LEDS development and implementation processes. Obviously, capacity building will play a key role to enable poorer countries to fulfil such a role.

References

- Ahonen, Hanna-Mari; Hoch, Stephan; Michaelowa, Axel; Espelage, Aglaja (2020): Accelerating the implementation of Article 6 through programmes and upscaled crediting, CMM-WG background paper 07/2020, Version 2, Perspectives Climate Research, Freiburg
- Cames, D. M., Harthan, D. R., Füssler, D. J., Lazarus, M., Lee, C. M., Erickson, P., & Spalding-Fecher, R. (2016). How additional is the Clean Development Mechanism? DG Klima, Berlin
- ECBI (2018): Pocket Guide To NDCs under the UNFCCC (2018), <https://pubs.iied.org/sites/default/files/pdfs/migrate/G04320.pdf> (accessed May 4, 2021)
- Gillenwater, Michael (2012): What is additionality? Part 1: A long standing problem (Discussion Paper No. 001), Silver Spring, GHG Management Institute, Washington
- Gold Standard (2021): How will ongoing financial need (OFN) work? Is it the same as additionality?, <https://www.goldstandard.org/resources/faqs> (accessed on May 4, 2021)
- Hermwille, Lukas; Obergassel, Wolfgang (2018): Additionality après Paris Stronghold for Environmental Integrity?, JIKO Policy Paper No. 01/2018, Wuppertal
- Hermwille, Lukas (2020): Reconciling pretensions and reality – the situation-ambition approach for dynamic baselines under Article 6.4. No. 01/2020. JIKO Policy Paper, Wuppertal
- Kollmuss, Anja; Schneider, Lambert; Zhezherin, Vladislav (2015): Has joint implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms, SEI Working Paper No. 2015-07, Stockholm Environment Institute, Stockholm
- Kreibich, Nicolas; Obergassel, Wolfgang (2018): New paths to policy crediting? Challenges and opportunities of policy-based cooperation under Article 6 of the Paris Agreement, JIKO Policy Paper 04/2018, Wuppertal
- Lo Re, Luca; Ellis, Jane; Vaidyula, Manasvini; Prag, Andrew (2019): Designing the Article 6.4 mechanism: assessing selected baseline approaches and their implications, Climate Change Expert Group, Paper No. 2019 (5), Paris
- Michaelowa, Axel (2009): Interpreting the additionality of CDM projects: Changes in additionality definitions and regulatory practices over time, in: Oxford Scholarship Online, Freestone and Streck (ed.), Legal aspects of carbon trading: Kyoto, Copenhagen, and beyond, University Press, Oxford, p. 1-22
- Michaelowa, A.; Butzengeiger, S. (2017): Ensuring additionality under Art. 6 of the Paris Agreement. Discussion Paper, Perspectives Climate Group, Freiburg
- Michaelowa, Axel; Hermwille, Lukas; Obergassel, Wolfgang; Butzengeiger, Sonja (2019): Additionality revisited: guarding the integrity of market mechanisms under the Paris Agreement, Climate Policy, 19:10, p. 1211-1224
- Michaelowa, A.; Brescia, D.; Wohlgemuth, N.; Galt, H.; Espelage, A.; Moreno, L. (2020a): CDM method transformation - updating and transforming CDM methods for use in an Article 6 context. Background Paper, Perspectives Climate Research, Freiburg

- Michaelowa, A.; Espelage, A.; Müller, B. (2020b): Negotiation cooperation under Article 6 of the Paris Agreement – Update for negotiators after COP25, European Capacity Building Initiative, Oxford
- Michaelowa, Axel; Ahonen, Hanna-Mari; Espelage, Aglaja (2021a): Setting crediting baselines under Article 6 of the Paris Agreement, CMM-WG Discussion Paper, Freiburg
- Michaelowa, Axel; Michaelowa, Katharina; Hermwille, Lukas; Espelage, Aglaja (2021b): Towards net zero: Dynamic baselines for international market mechanisms. CIS Working Paper No. 107, Zurich
- Schmitz, Simon; Michaelowa, Axel (2005): Kyoto Institutions: Baselines and bargaining under Joint Implementation, *Environmental Politics*, p. 83-102
- Schneider, Lambert; Broekhoff, Derik; Füssler, Jürg; Lazarus, Michael; Michaelowa, Axel; Spalding-Fecher, Randall (2012): Standardized baselines for the CDM – Are we on the right track?, <https://carbonmarketwatch.org/wp-content/uploads/2012/11/Schneider-Broekhoff-Fuessler-Lazarus-Spalding-Fecher-2012-Standardized-Baselines-in-the-CDM-Are-we-on-The-Right-Track.pdf>
- Sharma, Anju; Michaelowa, Axel; Espelage, Aglaja; Allan, Jennifer; Müller, Benito (2020): COP25 key outcomes, European Capacity Building Initiative, Oxford
- Shishlov, I., & Bellassen, V. (2012). Ten lessons from ten years of the Clean Development Mechanism, CDC Climat, Paris
- Spalding-Fecher, R., Kohli, A., Fuessler, J., Broekhoff, D., & Schneider, L. (2020, August). Practical strategies to avoid over-selling under Article 6. Retrieved from Carbon Mechanisms: https://www.carbon-mechanisms.de/fileadmin/media/bilder/Presentation-Randall-Spalding-Fecher_reducing-overselling-risks.pdf
- UNFCCC (1998): Kyoto Protocol to the United Nations Framework Convention on Climate Change, UNFCCC, Bonn (accessed April 24, 2021)
- UNFCCC (2002): Report of the Conference of the Parties on its seventh session, held at Marrakesh from 29 October to 10 November 2001, FCCC/CP/2001/13, Bonn
- UNFCCC (2005): CDM EB 22 Report. Annex 3
- UNFCCC (2012): Information note on proposed draft guidelines for determination of baseline and additionality thresholds for standardized baselines using the performance penetration approach, CDM-MP58-A20, Bonn
- UNFCCC (2012b): Methodological tool, tool for the demonstration and assessment of additionality, tool 01, version 07.0.0, clean development mechanism, Bonn
- UNFCCC (2013): Application of E+/E- policies for the investment analysis demonstration of additionality, CDM EB 73, Bonn
- UNFCCC (2016a): Review of the joint implementation guidelines: Draft conclusions proposed by the Chair, FCCC/SBI/2016/L8, Annex, Bonn
- UNFCCC (2016b): Synthesis report on the aggregate effect of INDCs, <https://unfccc.int/process/the-paris-agreement/nationally-determined-contributions/synthesis-report-on->

the-aggregate-effect-of-intended-nationally-determined-contributions (accessed on May 5, 2021)

UNFCCC (2018): Further guidance in relation to the mitigation section of decision 1/CP.21, Decision 4/CMA.1, UNFCCC, Bonn

UNFCCC (2019a): Draft text on matters relating to Article 6 of the Paris Agreement - Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Version 1 of 13 December 11:45, UNFCCC COP 25, Madrid

UNFCCC (2019b): Draft text on matters relating to Article 6 of the Paris Agreement - Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Version 2 of 14 December 9:00, UNFCCC COP 25, Madrid

UNFCCC (2019c): Draft text on matters relating to Article 6 of the Paris Agreement: Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Version 3, UNFCCC COP 25, Madrid

UNFCCC (2019d): Draft text on matters relating to Article 6 of the Paris Agreement: Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Version 3, UNFCCC COP 25, Madrid

UNFCCC (2021): Initial NDC Synthesis Report, <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs/ndc-synthesis-report> (accessed on May 4, 2021)

Warnecke, Carsten; Day, Thomas; Scheider, Lambert; Cames, Martin; Healy, Sean; Harthan, Ralph; Tewari, Ritika; Höhne, Niklas: Vulnerability of CDM projects for discontinuation of mitigation activities: Assessment of project vulnerability and options to support continued mitigation, DEHSt discussion paper, New Climate and Öko-Institut e.V., Köln and Freiburg

Wooders, Peter; Gass, Philip; Bridle, Richard; Beaton, Christopher; Gagnon-Lebrun, Frédéric; Michaelowa, Axel; Hoch, Stephan; Honegger, Matthias; Matsuo, Tyeler; Villa, Vanessa; Johnson, Mark; Harries, James (2016): Supporting energy pricing reform and carbon pricing policies through crediting, IISD, Geneva

Annex I: The survey

1. What is your professional background?

Multiple Choice

Carbon credit project development

Carbon credit service provider (e.g. aggregator/intermediary)

Consulting

Private sector carbon credit buyer

Public sector/Government

Financial sector

Standard setting/verification organisation

Non-governmental organisation

Academia

Other

2. How would you judge your level of expertise?

Low (non-professional interest, recent engagement in carbon markets)

Medium (some professional experience in carbon markets)

High (long-standing experience in carbon markets)

3. Additionality testing is needed for crediting mitigation outcomes that are not covered by the Nationally Determined Contribution (NDC) of the host country

Str. Disagree – str. Agree

4. Additionality testing is needed for crediting mitigation outcomes that are covered by the NDC

Str. Disagree – str. Agree

5. If you agree that additionality testing is needed for crediting mitigation outcomes, then additionality testing should include consideration of:

Rating each from str. Disagree to str. agree:

financial barriers

non-financial barriers

existing policies

planned policies

unconditional NDC targets

conditional NDC targets

market penetration rates

6. What else should additionality testing consider that has not been asked about so far in this survey?

Open question

7. Positive lists can be a valuable tool for additionality testing

Str. Disagree – str. Agree

8. If you agree that positive lists are a useful tool, then who should develop and approve positive lists?

Select:

Host country

International body (e.g. Article 6.4 Supervisory Body or standard-setting body)

Host country should develop and international body should approve

Other

9. How often should positive lists be updated?

Multiple choice:

Every 3 years

Every 5 years

Every 10 years

In line with NDC implementation periods

On a case-by-case basis

Other

10. Baseline setting should include consideration of existing policies

Str. Disagree – str. Agree

11. Baseline setting should include consideration of planned policies

Str. Disagree – str. Agree

12. Baseline setting should include consideration of unconditional NDC targets

Str. Disagree – str. Agree

13. Baseline setting should include consideration of conditional NDC targets

Str. Disagree – str. Agree

14. Baseline setting should include consideration of long-term targets/long-term strategies

Str. Disagree – str. Agree

15. Baseline setting should include consideration of 1.5°C compatible pathways

Str. Disagree – str. Agree

16. Baseline setting should contribute to ambition-raising

Str. Disagree – str. Agree

17. There should be a default approach to setting crediting baselines in the context of the Paris Agreement

Str. Disagree – str. Agree

18. Please rate each of the below baseline setting approaches in terms of how appropriate they are for crediting in the context of the Paris Agreement

Rating each from str. Disagree to str. agree:

Historical emissions

Business-as-usual emissions

Below business-as-usual emissions

Projected emissions associated with unconditional NDC

Projected emissions associated with conditional NDC

Benchmarks derived from technology performance

Benchmarks derived from best available technology

Other

19. Existing monitoring methodologies...

Multiple choice:

need minor revisions to be applicable in the context of the Paris Agreement.

need minor revisions to be applicable in the context of the Paris Agreement.

may need minor or major revisions depending on the methodology to be applicable in the context of the Paris Agreement.

should not be used in in the context of the Paris Agreement.

Other

20. Digitalisation can be valuable for:

Multiple Choice:

Increasing trust in additionality testing

Increasing trust in baseline setting

Increasing trust in monitoring

Reducing transaction costs of additionality testing

Reducing transaction costs of baseline setting

Accelerating additionality testing process

Accelerating baseline-setting process

Accelerating monitoring process

Other

21. Which of the following issues should be prioritized in methodology development?

Multiple choice up to 3

Assessing the ambition of the host country NDC

Aligning additionality testing and baseline setting with NDCs

Policy crediting: baseline setting

Policy crediting: additionality testing

Methodologies for nature-based removals (including addressing permanence and leakage)

Methodologies for technology-based removals (including addressing permanence and leakage)

Positive/negative lists: country-specific

Positive/negative lists: technology-specific

Benchmark development: best available technologies

Benchmark development: performance-based

other

Annex II: Summary of the survey results

As part of the Carbon Market Mechanisms Working Group, a survey was made available on LinkedIn for a total of two months, requesting participants' views on approaches to additionality testing, baseline setting and monitoring for carbon credits under Article 6 of the Paris Agreement. The purpose of the survey was to gather a diverse set of opinions from stakeholders in the public and private sector to inform carbon market design under Article 6. All answers were kept anonymous. Overall, 68 participants completed the survey, offering a wide range of viewpoints on the relevant topics.

Participant background

To put opinions in context, survey participants were asked to provide their background. Overall, consultants made up the largest proportion of respondents, followed by carbon credit project developers and academics. Less represented were members of the financial sector, private sector carbon credit buyers and carbon credit service providers.

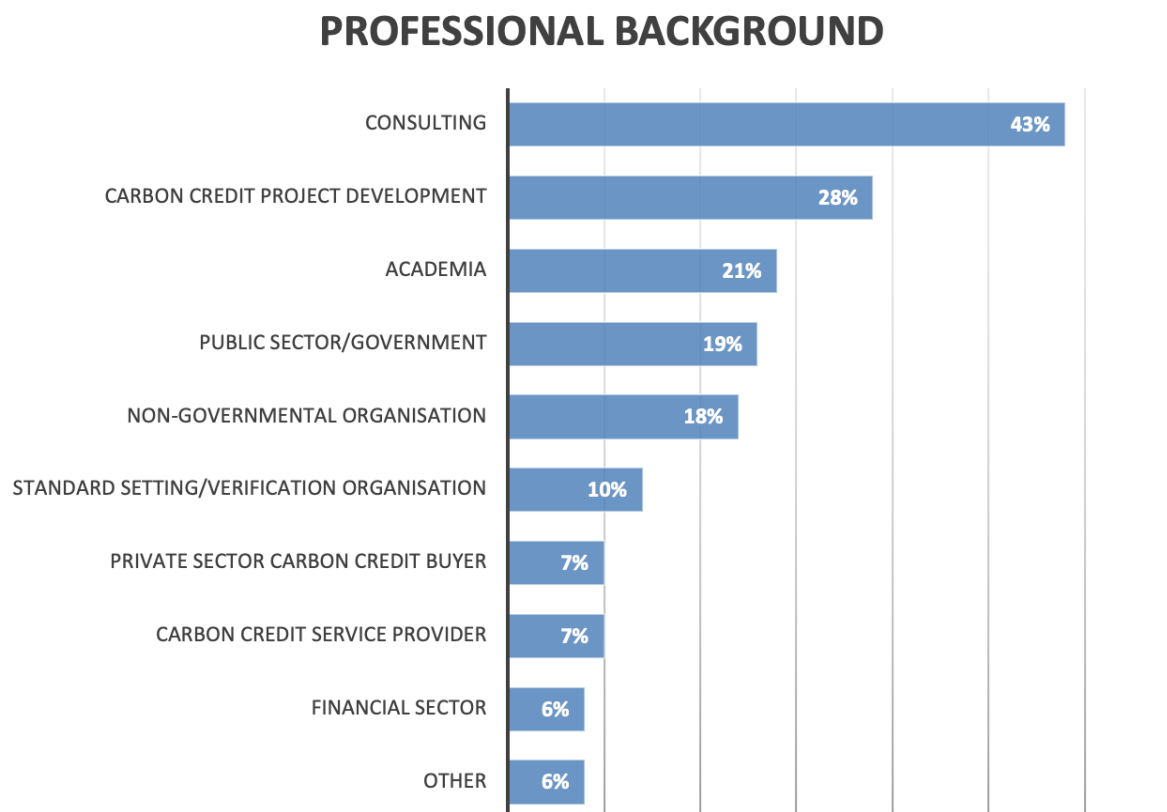


Figure 1: Professional background of survey participants

Most participants (57.4%) rated their level of expertise as high, indicating a long-standing professional experience in carbon markets. Only 8.8% indicated low expertise (recent engagement in carbon markets), suggesting a respondent pool primarily comprised of experienced carbon market consultants and project developers.

Additionality testing

The first topic covered in the survey was additionality testing. Participants were asked to rate their agreement with the statement, “Additionality testing is needed for crediting mitigation outcomes that are not covered by the Nationally Determined Contribution (NDC) of the host country.” The average rating was 4 out of 5, “agree”, indicating a strong preference for additionality testing among respondents. 39.7% selected “strongly agree” and only 2 participants “strongly disagreed”.

Next, participants were asked whether additionality testing is needed for crediting mitigation outcomes that are covered by the NDC. Again, the average answer was “agree”, with 32.3% of participants “strongly agreeing”.

Those that agreed were then asked to rate the importance of factors that should be taken into consideration (such as financial barriers, existing policies, conditional NDC targets, etc.). The consensus here was less clear, with all suggestions receiving a score of at least 3.22 (neutral). The option with the highest score was existing policies (4.03—agree). Other than this factor, none of the suggestions received high enough averages to suggest an overall positive opinion. One respondent who opposed taking planned policies into consideration noted that planned policies often take a while to set into action or are never implemented, while consideration would block action. Multiple suggestions were made to streamline additionality tests as much as possible, making them clear and easy to implement. Many participants felt that factors such as market penetration and non-financial barriers are subjective and can be easily manipulated to portray additionality. As a solution, several respondents noted that baselines are the clearest way to approach crediting.

Then, an open-ended question was posed for additional comments, which half of participants responded to. Overall, there was consensus that additionality testing should be simplified as much as possible, as previously mentioned, to avoid creating unnecessary barriers for developing countries. Some respondents questioned whether additionality testing is still a concept that makes sense, though the majority were in favour of this mechanism.

Positive lists

Building on the concept of additionality testing, respondents were asked whether or not positive lists can be a valuable tool for such testing. The average answer was 4 out of 5, “agree”, with only four participants strongly disagreeing. Comments were added pointing out that positive lists should be nationally/regionally tailored and regularly updated.

Next, participants were asked who should develop and approve positive lists. 42.9% of respondents agreed that host countries should develop their own positive lists, which would then be approved by international bodies. Another 33.3% believed that an international body should be solely responsible. Only 9.5% agreed that the host country should develop the list on its own.

Who should develop and approve positive lists?

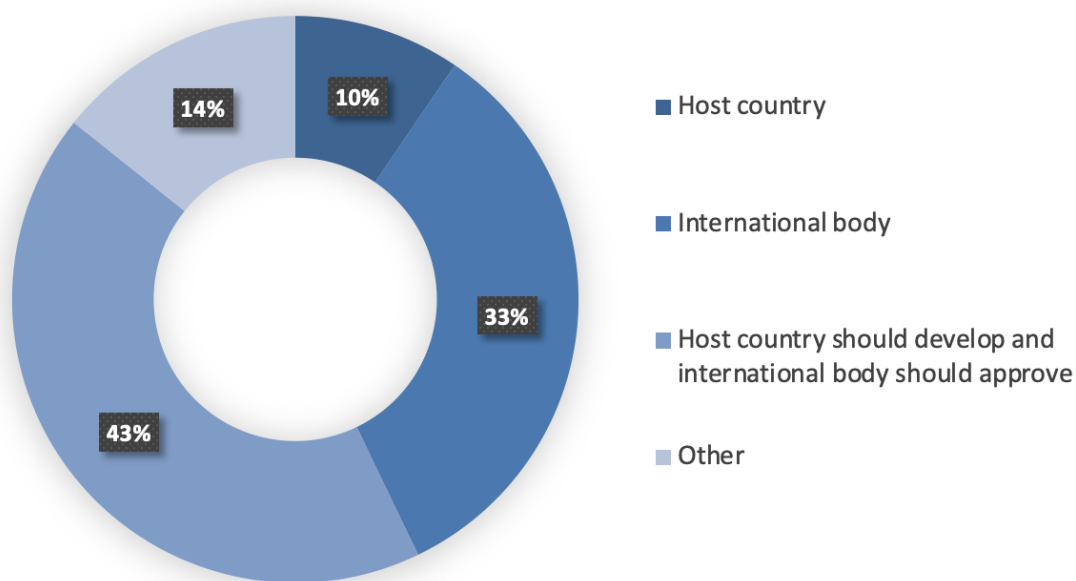


Figure 2: Positive list development and approval preferences

The next relevant question is how often positive lists should be updated. Here, the opinions were quite diverse, with approximately a quarter selecting every three years, another quarter favouring every five years, and other significant percentages choosing to update in line with NDC implementation periods or on a case-by-case basis. All participants felt that updating every 10 years would be too infrequent, however. Several of the participants that selected “other” felt that updates should be aligned with advancement in technology or other benchmarks.

Baseline setting

Another issue that respondents largely agreed on was the consideration of existing policies in baseline setting. 50% “strongly agreed” that existing policies should be taken into account, while 37.9% “agreed”. Only three participants disagreed with the statement.

There was slightly less consensus on the issue of planned policies. More than half of respondents agreed or strongly agreed that planned policies should be considered, but the group was less convinced on this topic than consideration of existing policies. The disagreement primarily stemmed from the uncertainty of whether or not planned policies would actually be implemented in the short term. For this reason, some participants felt that only existing policies should be considered. In the words of one participant, “planned policies are as good as non-existent”. Even those who agreed that planned policies should be considered often included comments suggesting that the likelihood of such policies being enacted be taken into account.

Over 70% of respondents agreed that baseline setting should include consideration of unconditional NDC targets, and 61.8% favoured consideration of conditional NDC targets, as well. Similarly, 63.2% agreed that long-term targets and strategies should be considered, with a small fraction disagreeing. Some respondents felt neutrally, noting that final outcomes of

long-term strategies are uncertain. Overall, many respondents pointed out that long-term strategies are dependent on finance, international partnerships, and other variables, and require individual assessment. Consideration of individual circumstances was a common theme throughout responses to many questions.

A majority of respondents also favoured including consideration of 1.5° C compatible pathways, though some answers did point out that this may not be an achievable goal for many countries.

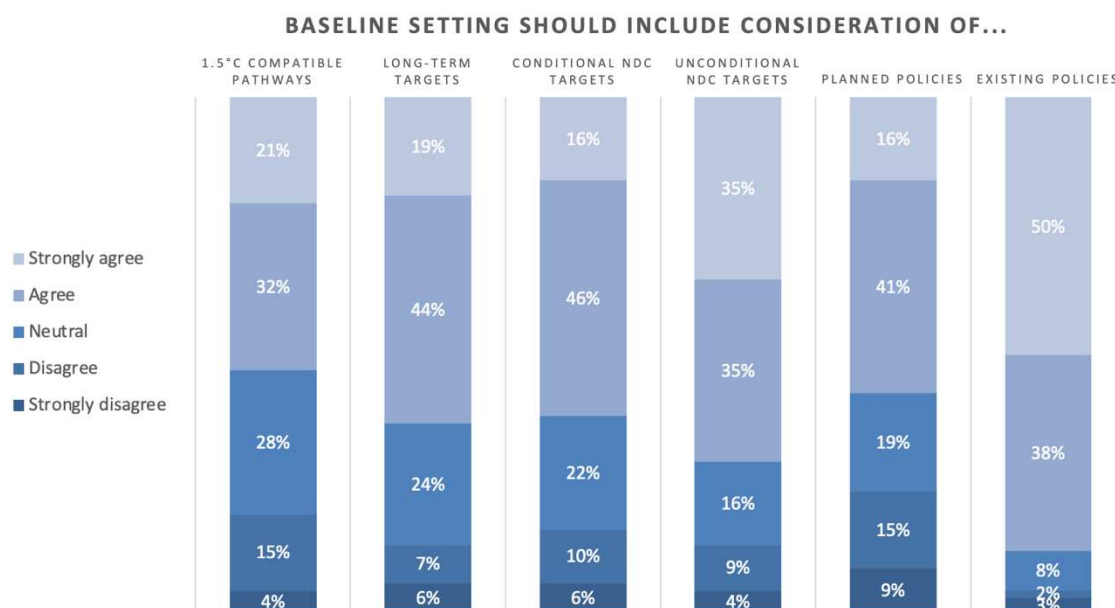


Figure 3: Factors to take into account in baseline setting

The next question asked respondents whether baseline setting should contribute to ambition-raising. Here, a large proportion (32.3%) felt neutrally, though the majority still agreed. One “neutral” respondent noted that many host country targets are already ambitious, and others pointed out that the concept of ambition is vague and unclear. Overall, many respondents did not feel negatively towards using baselines to raise ambition, but felt that other avenues were more effective, such as NDCs.

Most respondents agreed with the statement, “There should be a default approach to setting crediting baselines in the context of the Paris Agreement.” One respondent suggested, “Baselines should limit the carbon credits available as a portion of the measured and verified emission reductions, e.g., 30%.” Other approaches included following a 1.5° C emission reduction path or offering a “menu” of agreed approaches (which would ensure consistency but avoid one default approach). Overall, there was a consensus that one-size-fits-all approaches should be avoided, but clear guidance could be given. Respondents agreed that their answers were dependent on what this “default approach” would look like.

Then, survey participants were asked to rate a selection of baseline setting approaches in terms of how appropriate they are for crediting in the context of the Paris Agreement (such as historical emissions, projected emissions associated with unconditional NDC, benchmarks derived from best available technology, etc). Here, opinions were very skewed, with all choices receiving an average score of 2 out of 4 (“appropriate under specific circumstances”).

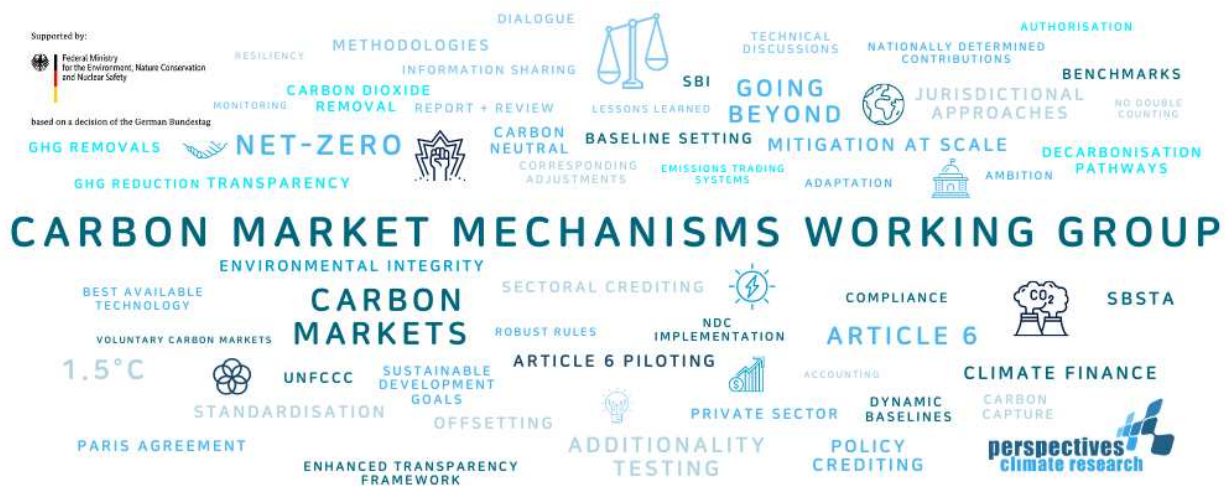
The highest scoring choices were projected emissions associated with unconditional NDC and benchmarks derived from best available technology, both with scores of 2.82 out of 4.

Regarding existing monitoring methodologies, 49.2% of respondents felt that they “may need minor or major revisions depending on the methodology to be applicable in the context of the Paris Agreement”. The other two popular answers were “need minor revisions to be applicable” (19.4%) and “need major revisions to be applicable” (13.4%). Only 5.9% of respondents felt that existing monitoring methodologies should not be used in the context of the Paris Agreement.

The last two questions also displayed a variety of opinions. First, participants were asked what goals digitalisation could be useful for. Respondents felt positively about almost all options, including increasing trust in baseline setting, trust in monitoring, reducing transaction cost of monitoring, and accelerating the monitoring process, showing a clear positive view of digitalisation in this process. Next, respondents were asked to select issues that should be prioritised in methodology development. Again, answers were widely dispersed, with favourites including aligning additionality testing and baseline setting with NDCs, country-specific positive/negative lists, and methodologies for nature-based removals.

Summary

Overall, the survey was very useful in assessing views on additionality testing, baseline setting and monitoring for carbon credits. Respondents were in favour of additionality testing both for crediting mitigation outcomes that were covered and not covered by host country NDCs, though there was no clear agreement on exact factors that should be taken into account. Above all, respondents felt that additionality testing should be as clear and simple as possible, and that positive lists could be a helpful tool, as long as they are nationally and regionally tailored. There were split opinions on how often positive lists should be updated, though certainly more often than every 10 years. As far as baseline setting, a majority of respondents agreed that existing policies, planned policies, unconditional and conditional NDC targets, long-term targets and 1.5° C compatible pathways should be considered. Though most respondents approved of the idea of a default approach to setting baselines, they felt that these guidelines will need to be constructed carefully and without a “one-size-fits-all” approach. Moving forward, the survey will be very useful in informing baseline setting and monitoring guidelines.



Perspectives Climate Research gGmbH

Hugstetter Str. 7 | 79106 Freiburg | Germany
info@perspectives.cc | www.perspectives.cc